# <CAUTION>

The some of the Test Point and VR on the Digital 1 P. C. Board are difference between schematic diagram and P. C. Board. Please refer to the following comparison chart when adjust the Digital 1 P. C. Board.

Convert Procedure : TP34xxx → TP1xxx VR34xxx → VR1xxx
TP35xxx → TP2xxx VR35xxx → VR2xxx

**Comparison Chart for Digital 1 P. C. Board**

| TEST POINT | | VR | |
|---|---|---|---|
| P. C. Board | Schematic | P. C. Board | Schematic |
| TP1301 | TP34301 | VR1803 | VR34803 |
| TP1701 | TP34701 | VR1902 | VR34902 |
| TP1702 | TP34702 | VR1801 | VR34801 |
| TP1802 | TP34802 | VR1901 | VR34901 |
| TP1805 | TP34805 | VR1702 | VR34702 |
| TP2702 | TP35702 | VC1901 | VC34901 |
| TP2703 | TP35703 | | |
| TP2704 | TP35704 | | |

# 1. Power Adjustment

## 1-1. +5.6V Adjustment

| | |
|---|---|
| **BOARD** | DD CONV. 1 |
| **SPEC.** | +5.70 ± 0.10V |
| **TEST** | TP1006 (GND: TG1001) |
| **ADJUST** | VR1001 |
| **INPUT** | - |
| **MODE** | - |
| **TAPE** | - |
| **M. EQ** | Digital Volt Meter |

1. Adjust VR1001 so that the voltage is in the specification.

## 1-2. +9V Adjustment

| | |
|---|---|
| **BOARD** | DD CONV. 1 |
| **SPEC.** | +9.10 ± 0.10V |
| **TEST** | TP1007 (GND: TG1001) |
| **ADJUST** | VR1002 |
| **INPUT** | - |
| **MODE** | - |
| **TAPE** | - |
| **M. EQ** | Digital Volt Meter |

1. Adjust VR1002 so that the voltage is in the specification.

## 1-3. -5.6V Adjustment

| | |
|---|---|
| **BOARD** | DD CONV. 1 |
| **SPEC.** | -5.70 ± 0.10V |
| **TEST** | TP1003 (GND: TG1001) |
| **ADJUST** | VR1003 |
| **INPUT** | - |
| **MODE** | - |
| **TAPE** | - |
| **M. EQ** | Digital Volt Meter |

1. Adjust VR1003 so that the voltage is in the specification.

## 1-4. -9V Adjustment

| | |
|---|---|
| **BOARD** | DD CONV. 1 |
| **SPEC.** | -9 ± 0.10V |
| **TEST** | TP1004 (GND: TG1001) |
| **ADJUST** | VR1005 |
| **INPUT** | - |
| **MODE** | - |
| **TAPE** | - |
| **M. EQ** | Digital Volt Meter |

1. Adjust VR1005 so that the voltage is in the specification.

## 1-5. +3.3V Adjustment

| | |
|---|---|
| **BOARD** | DD CONV. 2 |
| **SPEC.** | +3.42 ± 0.05V |
| **TEST** | TP1204 (GND: TG1201) |
| **ADJUST** | VR1201 |
| **INPUT** | - |
| **MODE** | - |
| **TAPE** | - |
| **M. EQ** | Digital Volt Meter |

1. Adjust VR1201 so that the voltage is in the specification.

## 1-6. +5V Adjustment

| | |
|---|---|
| **BOARD** | DD CONV. 2 |
| **SPEC.** | +5.15 ± 0.05V |
| **TEST** | TP1206 (GND: TG1201) |
| **ADJUST** | VR1202 |
| **INPUT** | - |
| **MODE** | - |
| **TAPE** | - |
| **M. EQ** | Digital Volt Meter |

1. Adjust VR1202 so that the voltage is in the specification.

## 1-7. Power Oscillation Frequency Adjustment (DD CONV. 1/2)

| BOARD | DD CONV. 1 | DD CONV. 2 |
|---|---|---|
| SPEC. | 102 ± 2KHz | |
| TEST | TP1008<br>(GND: TG1001) | TP1208<br>(GND: TG1201) |
| ADJUST | VR1004 | VR1204 |
| INPUT | - | |
| MODE | - | |
| TAPE | - | |
| M. EQ | Frequency Counter | |

1. Adjust VR1004/VR1204 so that the voltage is in the specification.

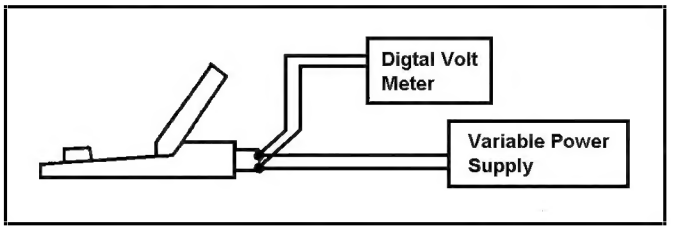
## 1-8. Battery Voltage Detection Adjustment

| BOARD | - |
|---|---|
| SPEC. | +12.00 ± 0.02V |
| TEST | DC IN (VTR side end of XLR4P) |
| ADJUST | Service Menu<br>E02: UNDERCUT ADJ of VTR1 Side |
| INPUT | - |
| MODE | EJECT |
| TAPE | No Tape |
| M. EQ | Digital Volt Meter |

1. Adjust the output voltage of the variable power supply to +12.00 ± 0.02V.
2. Open the SERVICE MENU and select SYSTEM ADJUST by Search Dial.
3. Press IN button and select E02: UNDERCUT ADJ.
4. Press the “ENTRY/SHIFT” and “IN” button simultaneously.
5. Press the OUT button to exit from SERVICE MENU.

Note:

Voltage (+3.3V, +5V, etc.) should have been adjusted.



# 2. Servo P.C. Board

## 2-1. T Reel Torque Offset Adjustment (VTR1/VTR2)

| | | |
|---|---|---|
| **BOARD** | Digital 1 and 2 | |
| **SPEC.** | 0 ± 5 [mV] | |
| **TEST** | VTR1 | VTR2 |
| | TP2702<br>TP2703 (GND) | TP33002<br>TP33003 (GND) |
| **ADJUST** | A01 T OFFSET | |
| **INPUT** | --- | |
| **MODE** | EJECT | |
| **TAPE** | --- | |
| **M. EQ** | Digital Volt Meter | |

1. Open the SERVO ADJUSTMENT MENU.
2. Adjust A01 T OFFSET by Jog Dial so that the voltage at each test point are in specification.
3. Press the OUT button to exit the SERVO ADJUSTMENT MENU.

Test Point Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| TP2702 | TP35702 |
| TP2703 | TP35703 |

## 2-2.S Reel Torque Offset Adjustment (VTR1/VTR2)

| | | |
|---|---|---|
| **BOARD** | Digital 1 and 2 | |
| **SPEC.** | 0 ± 5 [mV] | |
| **TEST** | VTR1 | VTR2 |
| | TP2704<br>TP2703 (GND) | TP33004<br>TP33003 (GND) |
| **ADJUST** | A02 S OFFSET | |
| **INPUT** | --- | |
| **MODE** | EJECT | |
| **TAPE** | --- | |
| **M. EQ** | Digital Volt Meter | |

1. Open the SERVO ADJUSTMENT MENU.
2. Adjust A02 S OFFSET by Jog Dial so that the voltage at each test point are in specification.
3. Press the OUT button to exit the SERVO ADJUSTMENT MENU.

Test Point Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| TP2704 | TP35704 |
| TP2703 | TP35703 |

## 2-3. Motor Torque Offset Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | - |
| **SPEC.** | 15 ± 2g (5 times average) |
| **TEST** | T-REEL MOTOR/S-REEL MOTOR |
| **ADJUST** | A03 T-TORQUE, A04 S-TORQUE |
| **INPUT** | - |
| **MODE** | STOP |
| **TAPE** | - |
| **M. EQ** | Dial Torque Gauge |

1. Disconnect the connector P3 on the Carriage Board of Front Loading Unit.
2. Unscrew the 6 screws and remove the Top Plate on the Front Loading Unit.
3. Open the SERVO ADJUSTMENT MENU.
4. Set the Dial Torque Gauge to T-Reel Motor.
5. In loading completion, adjust the A03 T-TORQUE by turning the JOG Dial. Measure it 5 times and calculate the average, and adjust it so that the average is in the specification.
6. Set the Dial Torque Gauge to S-Reel Motor.
7. In loading completion, adjust the A04 S-TORQUE by turning the JOG Dial. Measure it 5 times and calculate the average, and adjust it so that the average is in the specification.
8. Press the OUT button to exit the SERVO ADJUSTMENT MENU.

Note:

The power should not be off when the SERVICE MENU is opened.

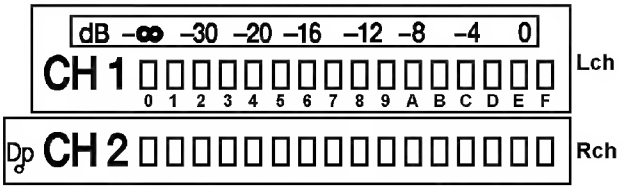
# 3. Digital P.C. Board (Digital 1: VTR1) (Digital 2: VTR2)

## 3-1. Preparation

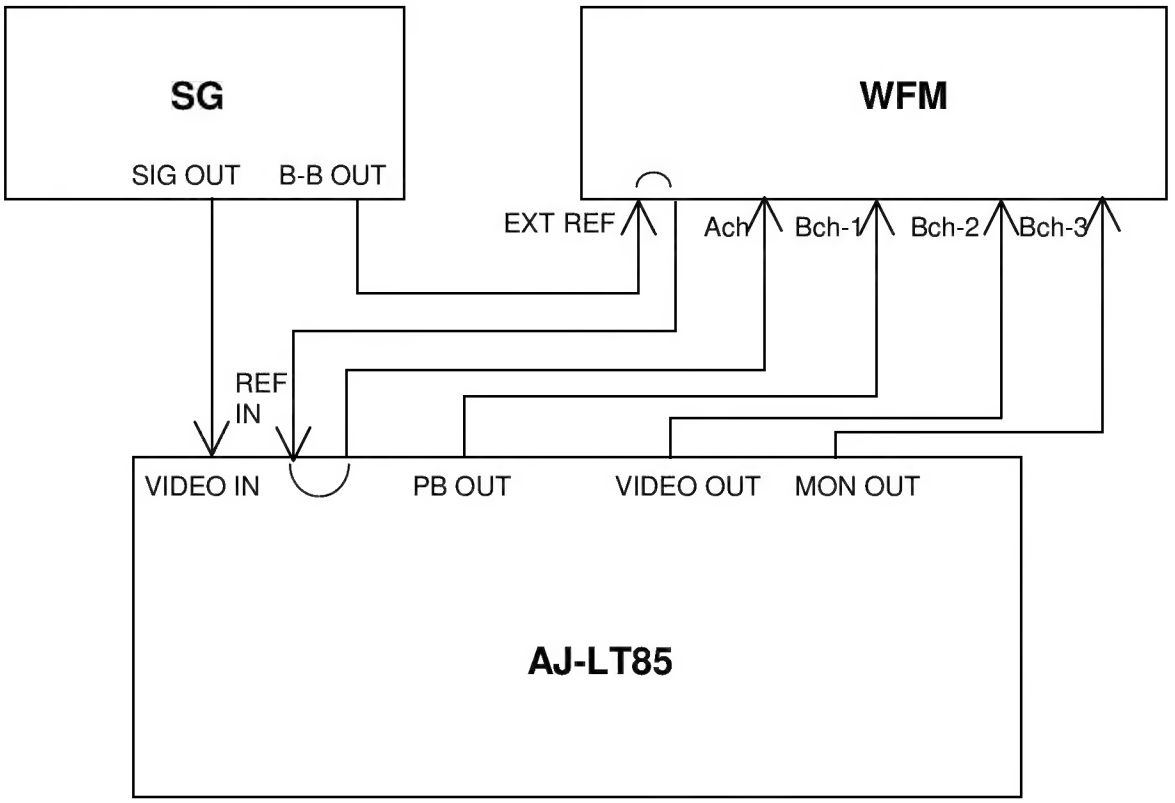
1. Unless specially designated, set the OPERATION MODE SW to SEPARATE.
2. Unless specially designation, use the input connector, output connector and Encoder VR of VTR1 in Digital 1 Adjustment, and use that of VTR2 in Digital 2 Adjustment.
3. "SYSTEM H" and "SYSTEM SC FINE" of the Encoder VR should be on center click portion. "SYS SC COARSE" of the Encoder VR should be on 0 position.
4. Adjust after about 10 minutes warm up.
5. The signal put to REF VIDEO IN should be the VIDEO IN signal or the GEN locked signal.

## 3-2. Error Rate Confirmation Procedure

When open the VIDEO ADJUST MENU, Audio Meter Display will be changed to Error Rate Indicator as follows,
When confirm the error rate of **VTR 2**, open the **VTR 1 VIDEO ADJUST MENU** to indicate the error rate of VTR 2.




## 3-1-1. Connection



## 3-3. Pre-Confirmation & Adjustment (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | as shown bellow |
| **TEST** | TP5802, TP5401, TP6002, TP5804 |
| **ADJUST** | VR5410 (Free-run Frequency)<br>C16: PB MAIN DL<br>C15: PB AEQ<br>C18: PB PLL SLICE<br>C20: PB PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | Frequency Counter, Oscilloscope, TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

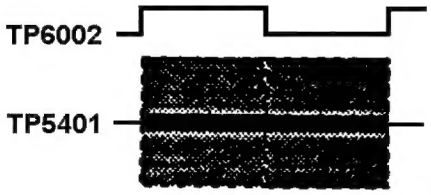
1. Open the service menu, select "C00: EQ ADJUST" and set as above.
2. Playback the alignment tape, and confirm that any random errors appear regardless of number of errors.
3. If the picture does not appears on the TV monitor, perform the step 4 to 8.
4. In tape eject condition, adjust VR5410 so that the free-run frequency at TP5802 is 41.85 ± 0.1MHz.
5. Playback the alignment tape, trigger with TP6002, and adjust 〔PB MAIN DL〕 〔PB AEQ〕 so that the waveform at TP5401 becomes as shown below.
6. Adjust the 〔PB PLL SLICE〕 so that the waveform at TP5804 becomes as shown below.

Note:

The input of the scope from TP5804 should be AC IN mode.

**< Before Adjustment >**

**< After Adjustment >**




**< Before Adjustment >**

**< After Adjustment >**

**Spec. A = B**

7. Adjust the 〔PB PLL PHASE〕 so that the random error becomes minimum on the monitor screen.

Note:

The adjustment procedure step 4 to 7 is finished when a picture appears.

8. Repeat EJECT → Cassette Insert → PLAY to confirm that a picture appears exactly.

## 3-4. PLL Latch Phase Coarse Adjustment (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C20: PB PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust〔PB PLL PHASE〕so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust〔PB PLL PHASE〕so that the random error on the monitor screen becomes minimum.

## 3-5. PLL Slice Level Coarse Adjustment (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C18: PB PLL SLICE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust〔PB PLL SLICE〕so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust〔PB PLL SLICE〕so that the random error becomes minimum on the monitor screen.

## 3-6. EQ Adjustment (1) (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C16: PB MAIN DL<br>C15: PB AEQ |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust〔PB MAIN DL〕and〔PB AEQ〕so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust〔PB MAIN DL〕and〔PB AEQ〕so that the random error becomes minimum.

## 3-7. EQ Adjustment (2) (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C11: PB GAIN L<br>C13: PB PHASE L<br>C12: PB GAIN R<br>C14: PB PHASE R |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | Monitor TV |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust〔PB PLL SLICE〕so that the error rate on the Error Rate Indicator becomes minimum, following the procedure in below table.

| Procedure | Adjust | Error Rate |
|---|---|---|
| 1 | PB GAIN L | VIDEO Lch |
| 2 | PB PHASE L | |
| 3 | PB GAIN R | VIDEO Rch |
| 4 | PB PHASE R | |

## 3-8. PLL Slice Level Fine Adjustment (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C18: PB PLL SLICE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | Monitor TV |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

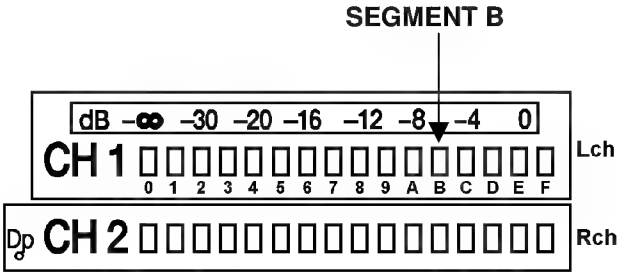
1. Playback the alignment tape, and adjust〔PB PLL SLICE〕so that the error rate on the Error Rate Indicator becomes minimum.

## 3-9. PLL Latch Phase Fine Adjustment (VTR1-PB/VTR2-PB)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | Error Rate : Less than B at Display |
| **TEST** | - |
| **ADJUST** | C20: PB PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust〔PB PLL PHASE〕so that the error rate on the Error Rate Indicator becomes less than B.



## 3-10. Viterbi Confirmation and Adjustment (VTR1-PB/VTR2-PB)

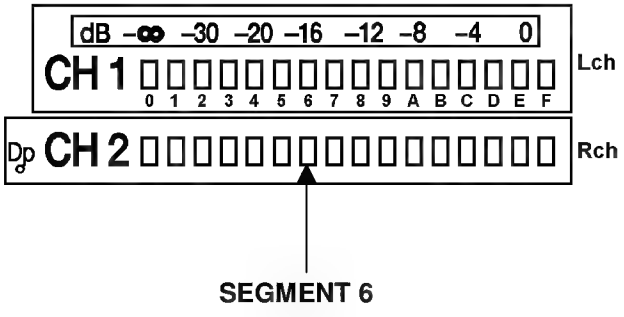
| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | Error Rate: Less than 6 |
| **TEST** | - |
| **ADJUST** | VR5601<br>C28 : CLOCK NO |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | AUTO |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Set the VITERBI MODE to AUTO in the SERVICE MENU.
2. Playback the alignment tape, and confirm that the error rate on the Error Rate Indicator is in the specification.
3. If it is not in the specification, adjust [CLOCK NO] so that the error rate is minimum.
4. If the error rate does not become less than 6, adjust VR5601 to reduce the error..

Note:

If the [CLOCK NO] value become more than 32 during adjustment, set this value to 0 and adjust again.




## 3-11. Pre-Confirmation and Adjustment (VTR1-RP/VTR2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | TP5801, TP5201, TP6001, TP5803 |
| **ADJUST** | VR5210 (Free-run Frequency)<br>C06: RP MAIN DL<br>C05: RP AEQ<br>C08: RP PLL SLICE<br>C10: RP PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor, Frequency Counter, Oscilloscope |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Set the VITERBI MODE to OFF in the SERVICE MENU and set PB MODE to RP H.
2. Playback the alignment tape, and confirm that any random error appear regardless of number of the errors.
3. If the picture does not appears on the TV monitor, perform the step 4 to 8.
4. Perform below operation.

"SHTL → STILL → STANDBY OFF"

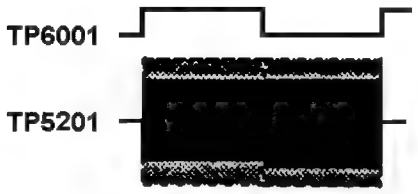
Adjust VR5210 so that the free-run frequency at TP5801 is 41.85 ± 0.1MHz.

5. In PLAY mode, triggered with TP6002, adjust 〔RP MAIN DL〕 and 〔RP AEQ〕 so that the waveform at TP5201 is as shown below.
6. Adjust the 〔RP PLL SLICE〕 so that the waveform at TP5803 becomes as shown below.

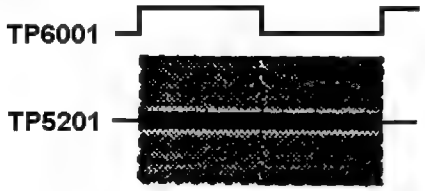
Note:

The input of the scope from TP5803 should be AC IN mode.

< Before Adjustment >

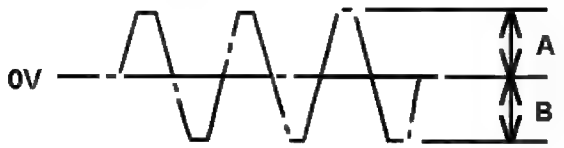



< After Adjustment >




< Before Adjustment >

< After Adjustment >




Spec. A = B

7. Adjust 〔RP PLL PHASE〕 so that the random error becomes minimum on the Monitor screen.

Note:

Adjustment procedure step 4 to 7 is finished when the picture appears on the monitor screen.

8. Repeat EJECT → Cassette Insert → PLAY to confirm that the picture appears exactly.

## 3-12. PLL Latch Phase Coarse Adjustment (VTR 1-RP/VTR 2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C10: RP PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust [RP PLL PHASE] so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red Light-up), adjust [RP PLL PHASE] so that the random error on the monitor screen becomes minimum.

## 3-13. PLL Slice Level Coarse Adjustment (VTR 1-RP/VTR 2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C08: RP PLL SLICE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust [RP PLL SLICE] so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust [RP PLL SLICE] so that the random error on the monitor screen becomes minimum.

## 3-14. EQ Adjustment (1) (VTR 1-RP/VTR 2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C06: RP MAIN DL<br>C05: RP AEQ |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust [RP MAIN DL] and [RP AEQ] so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust [RP MAIN DL] and [RP AEQ] so that the random error on the monitor screen becomes minimum.

## 3-15. EQ Adjustment (2) (VTR 1-RP/VTR 2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C01: RP GAIN L<br>C03: RP PHASE L<br>C02: RP GAIN R<br>C04: RP PHASE R |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and perform the adjustment procedure as shown in table below so that the error rate becomes minimum.

| Procedure | Adjust | Error Rate |
|---|---|---|
| 1 | RP GAIN L | VIDEO Lch |
| 2 | RP PHASE L | |
| 3 | RP GAIN R | VIDEO Rch |
| 4 | RP PHASE R | |

## 3-16. PLL Slice Level Fine Adjustment (VTR 1-RP/VTR 2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | - |
| **TEST** | - |
| **ADJUST** | C08: RP PLL SLICE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

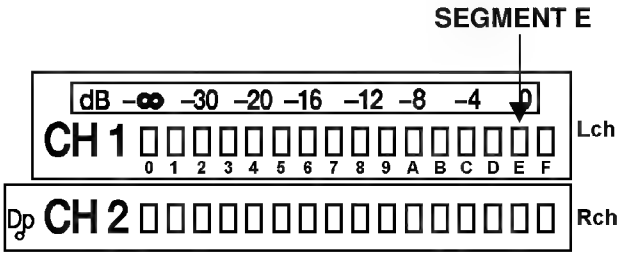
1. Playback the alignment tape, and adjust [RP PLL SLICE] so that the error rate on the Error Rate Indicator becomes minimum.

## 3-17. PLL Latch Phase Fine Adjustment (VTR 1-RP/VTR 2-RP)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | Error Rate : Less than E at Display |
| **TEST** | - |
| **ADJUST** | C10: RP PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Playback the alignment tape, and adjust [RP PLL PHASE] so that the error rate on the Error Rate Indicator becomes minimum.




## 3-18. Pre-Confirmation & Adjustment (VTR 1-DV/VTR 2-DV)

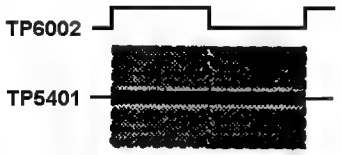
| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | TP5401, TP6002, TP5804 |
| **ADJUST** | C16: PB MAIN DL<br>C15: PB AEQ<br>C18: PB PLL SLICE<br>C20: PB PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor, Oscilloscope |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. In the SERVICE MENU, select "c00: EQ ADJUST (DV)" and set as shown above.
2. Playback the alignment tape, and confirm that any random errors appear regardless of number of the errors.
3. If a picture do not appears, perform steps 4 to 7.
4. In PLAY mode, trigger with TP6002, and adjust [PB MAIN DL] and [PB AEQ] so that the waveform at TP5401 is as shown below.

**< Before Adjustment >**

**< After Adjustment >**

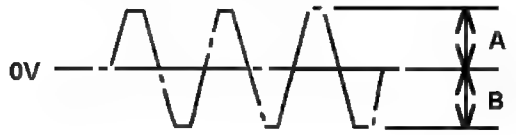


5. Adjust [PB PLL SLICE] so that the waveform is as shown below.

Note:
Input of the scope from TP5804 should be AC IN mode.

**< Before Adjustment >**

**< After Adjustment >**




**Spec. A = B**

6. Adjust [PB PLL PHASE] so that the random error on the monitor screen become minimum.
7. Repeat EJECT → Cassette Insert → PLAY to confirm that a picture appears exactly.

## 3-19. PLL Latch Phase Coarse Adjustment (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | - |
| **ADJUST** | C20: PB PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Playback the alignment tape, and adjust [PB PLL PHASE] so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust [PB PLL PHASE] so that the random error on the monitor screen becomes minimum.

## 3-20. PLL Slice Level Coarse Adjustment (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | - |
| **ADJUST** | C18: PB PLL SLICE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Playback the alignment tape, and adjust [PB PLL SLICE] so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust [PB PLL SLICE] so that the random error on the monitor screen becomes minimum.

## 3-21. EQ Adjustment (1) (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | - |
| **ADJUST** | C16: PB MAIN DL<br>C15: PB AEQ |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Playback the alignment tape, and adjust [PB MAIN DL] and [PB AEQ] so that the error rate on the Error Rate Indicator becomes minimum.
2. If the Error Rate Indicated is still MAX (Red light-up), adjust [PB MAIN DL] and [PB AEQ] so that the random error on the monitor screen becomes minimum.

## 3-22. EQ Adjustment (2) (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | - |
| **ADJUST** | C11: PB GAIN L<br>C13: PB PHASE L<br>C12: PB GAIN R<br>C14: PB PHASE R |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Playback the alignment tape on the Error Rate Indicator , and perform the adjustment procedure as shown below so that the Error Rate Indicated becomes minimum.

| Procedure | Adjust | Error Rate |
|---|---|---|
| 1 | PB GAIN L | VIDEO Lch |
| 2 | PB PHASE L | |
| 3 | PB GAIN R | VIDEO Rch |
| 4 | PB PHASE R | |

## 3-23. PLL Slice Level Fine Adjustment (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | - |
| **ADJUST** | C18: PB PLL SLICE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Playback the alignment tape, and adjust [PB PLL SLICE] so that the error rate on the Error Rate Indicator becomes minimum.

## 3-24. PLL Latch Phase Fine Adjustment (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | --- |
| **ADJUST** | C20: PB PLL PHASE |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | OFF |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Playback the alignment tape, and adjust [PB PLL PHASE] so that the error rate on the Error Rate Indicator becomes minimum.

## 3-25. Viterbi Confirmation and Adjustment (VTR 1-DV/VTR 2-DV)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | Error Rate : Less than D at Display |
| **TEST** | - |
| **ADJUST** | --- |
| **INPUT** | - |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | TV Monitor |

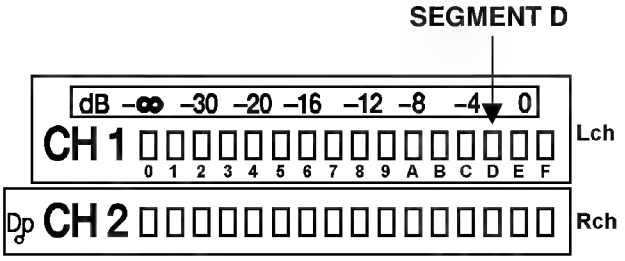
| MENU SETTING | | | |
|---|---|---|---|
| c22 | ECC MODE | : | AL OFF |
| c23 | CONCEAL MODE | : | OFF |
| c24 | VITERBI MODE | : | ON |
| c25 | PB MODE | : | RP H |
| c26 | ERROR MODE | : | FAST |
| c27 | EQ AUTO ADJ | : | STOP |

1. Set the VITERBI MODE to ON in the SERVICE MENU.
2. Playback the alignment tape, confirm the error rate on the Error Rate Indicator is in the specification.
3. If it is out of the specification

① Adjust [PB PLL PHASE]

② Adjust [PB PLL SLICE]

4. Return to the master MENU of SERVICE MENU.



## 3-26. PLL Lock DC Confirmation & Adjustment (VTR 1/VTR 2)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | 0 ± 0.2V |
| **TEST** | TP33101 (VTR 1)/TP30101 (VTR 2) |
| **ADJUST** | VC33151 (VTR1)/VC1 (VTR 2) |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

1. Confirm that the PLL Lock DC is in the specification, if it is out of the specification, adjust VC33151 (VTR 1)/VC1 (VTR 2) so that the voltage becomes in the specification.

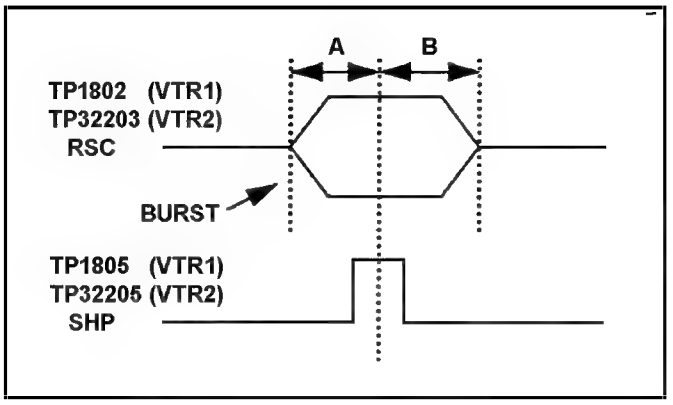
## 3-27. SG S/H Confirmation & Adjustment (VTR 1/VTR 2)

| | | |
|---|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) | |
| **SPEC.** | A=B ± 10% | |
| **TEST** | VTR1 | VTR2 |
| | TP1802 (RSC)<br>TP1805 (SHP) | TP32203 (RSC)<br>TP32205 (SHP) |
| **ADJUST** | VR1801 (VTR 1)/VR32201 (VTR 2) | |
| **INPUT** | 75% Color Bar: REF VIDEO IN (VTR 1)/VIDEO IN (VTR 2) | |
| **MODE** | EE | |
| **TAPE** | --- | |
| **M. EQ** | Oscilloscope | |

1. Adjust VR1801 (VTR 1)/VR32201 (VTR 2) so that the center of SPH pulse at TP1805 (VTR 1)/TP32205 (VTR 2) align with center of the burst signal.
2. Then the phase difference is in the specification.

Test Point and VR Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| TP1802 | TP34802 |
| TP1805 | TP34805 |
| VR1801 | VR34801 |



## 3-28. 17.7 MHz VCO Adjustment (VTR 1/VTR 2)

| | | |
|---|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) | |
| **SPEC.** | 17734476 ± 5 Hz | |
| **TEST** | VTR1 | VTR2 |
| | TP1701 | TP32101 |
| **ADJUST** | VC1901 (VTR 1)/VC32301 (VTR 2) | |
| **INPUT** | --- | |
| **MODE** | EE | |
| **TAPE** | --- | |
| **M. EQ** | Frequency Counter | |

1. Connect the frequency counter to TP1701 (VTR 1)/TP32101 (VTR 2), and adjust VC34901 (VTR 1)/VC32301 (VTR 2) so that the frequency becomes 17734476 Hz ± 5 Hz.

Test Point and VR Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| TP1701 | TP34701 |
| VC1901 | VC34901 |

## 3-29. REF SCH Adjustment (VTR 1/VTR 2)

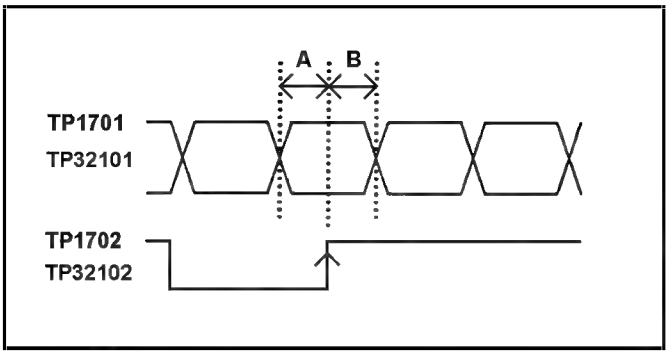
| | | |
|---|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) | |
| **SPEC.** | A=B ± 10% | |
| **TEST** | VTR1 | VTR2 |
| | TP1701<br>TP1702 | TP32101<br>TP32102 |
| **ADJUST** | VR1802 (VTR 1)/VR32202 (VTR 2) | |
| **INPUT** | REF VIDEO IN: 75% Color Bar | |
| **MODE** | EE | |
| **TAPE** | -- | |
| **M. EQ** | Oscilloscope | |

1. Adjust VR1802 (VTR 1)/VR32202 (VTR 2) so that the rising edge of TP1702 (VTR 1)/TP32102 align with Center of SC at TP1701 (VTR 1)/TP32101 (VTR 2).

Note:
SCH of input video signal and REF video signal are both 0 ° .

Test Point and VR Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| TP1701 | TP34701 |
| TP1702 | TP34702 |
| VR1802 | VR34802 |



## 3-30. System Sub Carrier Phase Confirmation & Adjustment (VTR 1/VTR 2)

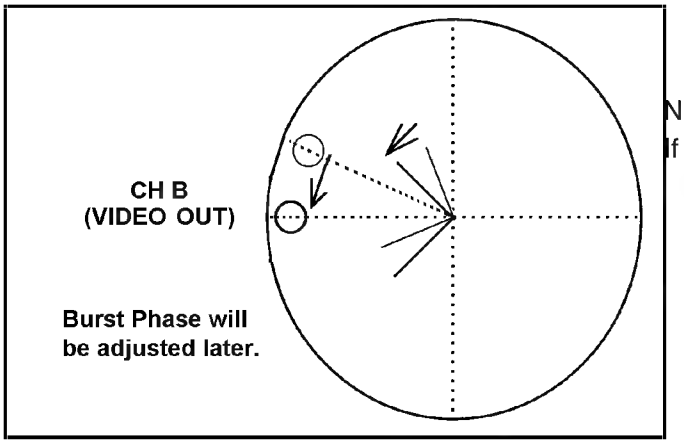
| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | 0 ± 1° |
| **TEST** | PB OUT (VTR1)VIDEO OUT (VTR2) |
| **ADJUST** | VR1901 (VTR 1)/VR32301 (VTR 2) |
| **INPUT** | REF VIDEO IN: 75% Color Bar |
| **MODE** | EE |
| **TAPE** | - |
| **M. EQ** | SCH Meter |

1. Confirm that the phase of System Sub Carrier (CH B) is in the specification.
2. If it is out of the specification, adjust VR1901 (VTR 1)/VR32301 (VTR 2) so that the phase of System Sub Carrier is in the specification.

Note:
Before confirmation and adjustment, observe the REF VIDEO IN (CH A) with the EXT REF, adjust the display position of SCH.

VR Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| VR1901 | VR34901 |

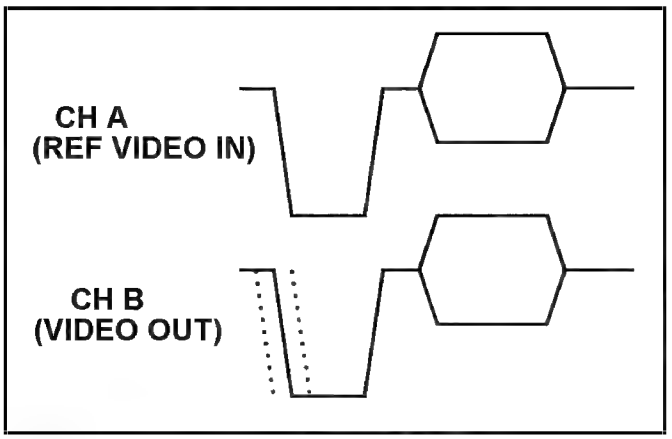



N
If

## 3-31. System H Phase Confirmation & Adjustment (VTR 1/VTR 2)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | less than ± 74 nsec |
| **TEST** | REF VIDEO IN (CH A)<br>PB OUT (VTR1)<br>VIDEO OUT (VTR2) |
| **ADJUST** | VR1702(VTR1) / VR32102(VTR2) |
| **INPUT** | REF VIDEO IN: 75% Color Bar |
| **MODE** | EE |
| **TAPE** | - |
| **M. EQ** | WFM Monitor |

1. Set the WFM Monitor to EXT REF.
2. Confirm that the phase difference between CH A and CH B is in the specification.




**NOTE:**
If the phase difference between CH A and CH B is out of the specification, adjust Side Encoder VR and System H so that it becomes in the specification. If it is not becomes in the specification, adjust VR1702 (VTR 1)/VR32102 (VTR 2)

1. Adjust VR1702 (VTR 1)/VR32102 (VTR 2) so that the VIDEO OUT H Sync phase position is as close as that the REF IN H Sync phase position by selecting the WFM input REF IN and VIDEO OUT alternately.

VR Comparison Chart for Digital 1

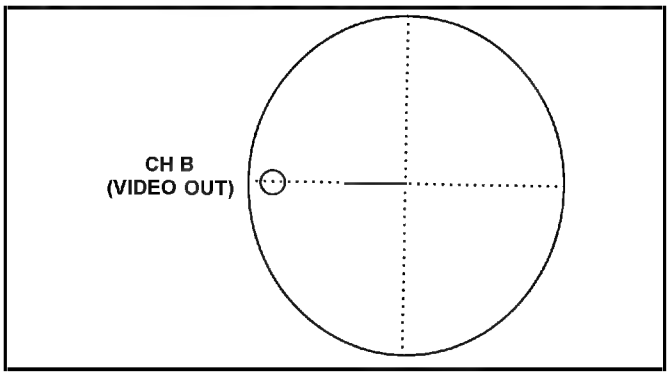
| P. C. Board | Schematic |
|---|---|
| VR1702 | VR34702 |

## 3-32. Burst Phase Confirmation & Adjustment (VTR1/VTR2)

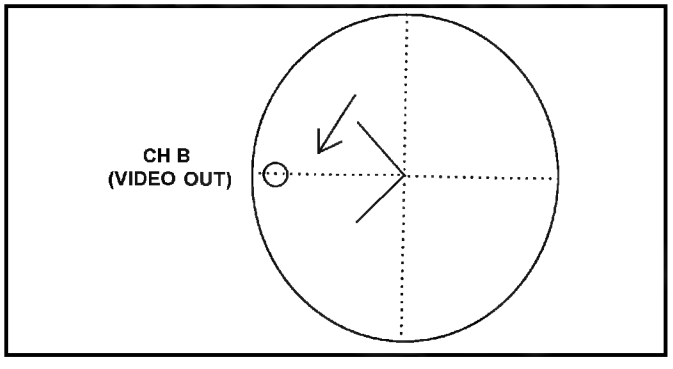
| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | 0 ± 1° |
| **TEST** | REF VIDEO IN (CH A)<br>VIDEO OUT (CH B) |
| **ADJUST** | VR1803 (VTR1) / VR32204 (VTR2) |
| **INPUT** | REF VIDEO IN: 75% Color Bar |
| **MODE** | EE |
| **TAPE** | Component Color Bar |
| **M. EQ** | SCH Meter |

1. Confirm that the phase of the SYSTEM SUB CARRIER of CH B align to the BURST.

Note:
Observe the CH A (REF VIDEO IN) with EXT REF, adjust the display position of SCH.




2. If the phase of SYSTEM SUB CARRIER does not align with the BURST PHASE, adjust VR1803 (VTR1) / VR32204 (VTR2) so that the BURST PHASE at CH B is in the specification.




VR Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| VR1803 | VR34803 |

## 3-33. Video Position Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | CH A and CH B are nearest position |
| **TEST** | REF VIDEO IN<br>PB OUT (VTR1)<br>VIDEO OUT (VTR2) |
| **ADJUST** | VR1902 (VTR1) / VR32302 (VTR2) |
| **INPUT** | REF VIDEO IN: 75% Color Bar |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | WFM Monitor |

1. Playback the Color Bar portion of the alignment tape.
2. Adjust VR1902 (VTR1)/VR32302 (VTR2) so that the video positions of CH A and CH B are nearest position.

VR Comparison Chart for Digital 1

| P. C. Board | Schematic |
|---|---|
| VR1902 | VR34902 |

## 3-34. VCO Free-run Frequency Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | 41.85 ± 0.1MHz |
| **TEST** | TP5801, TP5802 |
| **ADJUST** | VR5210, VR5410 |
| **INPUT** | --- |
| **MODE** | SHTL→STILL→STANDBY OFF |
| **TAPE** | Work Tape |
| **M. EQ** | Frequency Counter |

1. Insert the alignment tape, and change the mode to SHTL→STILL→STANDBY OFF.
2. Adjust VR5210 so that the frequency at TP5801 is in the specification.
3. Adjust VR5410 so that the frequency at TP5802 is in the specification.

## 3-35. Error Rate Indicator Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | --- |
| **TEST** | Error Rate indicator |
| **ADJUST** | VR5601 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | TV Monitor |

1. Playback the color bar portion of the alignment tape, and confirm that a picture is appeared on the monitor screen.
2. Press the 3 keys [V1/IN] [V1/OUT] [V2/IN] at same time, then confirm that the error indication is not MAX (Red light-up).
3. If the indication is MAX, adjust VR5601 so that the red indication is off.

## 3-36. PLL Lock VC Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) |
| **SPEC.** | 0.0 ± 0.2V |
| **TEST** | TP33101 (VTR1)/TP30101 (VTR2) |
| **ADJUST** | VC33151 (VTR1)<br>VC1 (VTR2) |
| **INPUT** | --- |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

1. Adjust VC33151 (VTR1)/VC1 (VTR2) so that the DC voltage at TP33101 (VTR1)/TP30101 (VTR2) is in the specification.

   Note:
   After this PLL Lock VC Level Adjustment, once put off the power, and again put on the power.

## 3-37. Audio VCO Center Frequency Adjustment (VTR1/VTR2)

| | | |
|---|---|---|
| **BOARD** | Digital 1 (VTR1)/Digital 2 (VTR2) | |
| **SPEC.** | 1: 48.00 ± 0.01kHz<br>2: 44.10 ± 0.01kHz<br>3: 32.00 ± 0.01kHz | |
| **TEST** | TP33301 (VTR1)<br>TP30802 (VTR2) | |
| **ADJUST** | VTR1 | VTR2 |
| | VR33301<br>VR33302<br>VR33303 | VR30801<br>VR30802<br>VR30803 |
| **INPUT** | VIDEO IN: 75% Color Bar | |
| **MODE** | EJECT | |
| **TAPE** | --- | |
| **M. EQ** | Frequency Counter | |

1. Open the Service Menu, and set E10: AUD VCO CHK as below.
2. Make the setting value of E10: AUD VCO CHK to 1: 48kHz, and adjust VR33301 (VTR1)/VR30801 (VTR2) so that the frequency is 48.00 ± 0.01kHz.
3. Make the setting value of E10: AUD VCO CHK to 2: 44kHz, and adjust VR33303 (VTR1)/VR30803 (VTR2) so that the frequency is 44.10 ± 0.01kHz.
4. Make the setting value of E10: AUD VCO CHK to 3: 32kHz and adjust VR33302 (VTR1)/VR30802 (VTR2) so that the frequency is 32.00 ± 0.01kHz.
5. Set the E10: AUD VCO CHK to 0: OFF to reset.

# 4. RF Amp

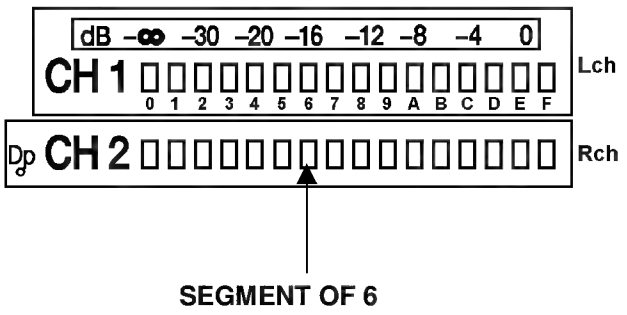
## 4-1. Playback Sub Adjustment (PB) (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | RF Amp |
| **SPEC.** | Error Rate: less than 6 |
| **TEST** | --- |
| **ADJUST** | B07: PB PHASE L<br>B08: PB PHASE R |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | --- |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | ON |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

Note:
In the EQ adjustments, if the PB side error rate is out of the specification, perform this adjustment.

1. In the SERVICE MENU, select "C00: EQ ADJUSTMENT" and set the menu as above, and after returned it to Master Menu once, select "B00: RF ADJUST".
2. Playback the alignment tape, adjust B07 [PB PHASE L] and B08 [PB PHASE R] so that the error rate indication becomes minimum.




**SEGMENT OF 6**

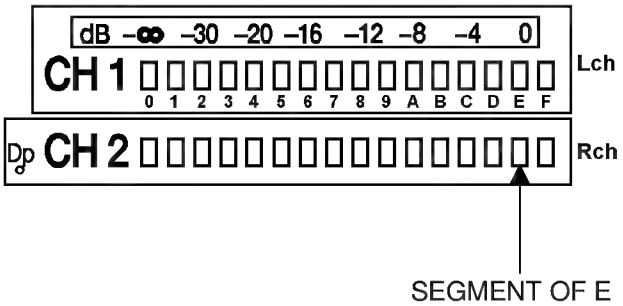
## 4-2. Playback Sub Adjustment (RP) (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | RF Amp |
| **SPEC.** | Error Rate: less than E |
| **TEST** | --- |
| **ADJUST** | B05: RP PHASE L<br>B06: RP PHASE R |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | --- |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | ON |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

Note:
In the EQ Adjustments, if the RP side error rate is out of the specification, perform this adjustment.

1. In the SERVICE MENU, select "C00: EQ ADJUST" and set the menu as above, and after returned it to Master Menu once, select "B00: RF ADJUST".
2. Playback the alignment tape, adjust B05 [RP PHASE L] and B06 [RP PHASE R] so that the error rate indication becomes minimum.




SEGMENT OF E

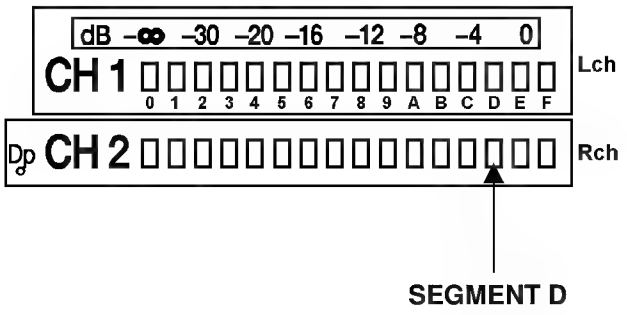
## 4-3. Playback Sub Adjustment (DV) (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | RF Amp |
| **SPEC.** | Error Rate: less than D |
| **TEST** | --- |
| **ADJUST** | b05: RP PHASE L<br>b06: RP PHASE R |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | --- |

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | AL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | ON |
| C25 | PB MODE | : | RP H |
| C26 | ERROR MODE | : | FAST |
| C27 | EQ AUTO ADJ | : | STOP |

Note:
In the EQ Adjustments, if the RP side error rate is out of the specification, perform this adjustment.

1. In the SERVICE MENU, select "c00: EQ ADJUST (DV)" and set the menu as above, and after returned it to Master Menu once, select b00; RF ADJUST (DV).
2. Playback the alignment tape, adjust B05 [RP PHASE L] and B06 [RP PHASE R] so that the error rate indication becomes minimum.



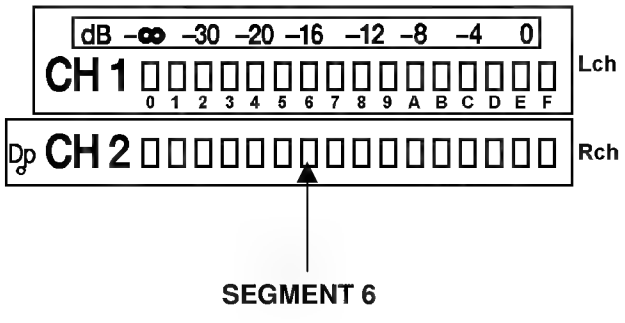
## 4-4. REC Current and REC Frequency Characteristic Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | ------ |
| **SPEC.** | Error Rate = less than 6 |
| **TEST** | ------ |
| **ADJUST** | B01: REC CURR L<br>B02: REC CURR R<br>B03: REC FREQ L<br>B04: REC FREQ R |
| **INPUT** | VIDEO IN: 75% color bar |
| **MODE** | PLAY, REC/PLAY |
| **TAPE** | Work Tape |
| **M. EQ** | ------ |

1. In SERVICE MENU, select C00:EQ ADJUST and set as follows.

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | ALL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | AUTO |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | SLOW |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

2. Record a color bar signal and playback the recorded portion.
3. Confirm that the error rate indication is less than 6.




4. If error rate becomes within specification, REC Current and REC Frequency adjustment do not required.
5. If error rate is becomes out of specification, Open the RF ADJUST menu and EVR adjustment performed as follow as this adjustment procedure.

**< ADJUSTMENT PROCEDURE >**

Set the item C24 to OFF as follows.

| MENU SETTING | | | |
|---|---|---|---|
| C22 | ECC MODE | : | ALL OFF |
| C23 | CONCEAL MODE | : | OFF |
| C24 | VITERBI MODE | : | OFF |
| C25 | PB MODE | : | PB H |
| C26 | ERROR MODE | : | SLOW |
| C27 | EQ AUTO ADJ | : | STOP |
| C28 | CLOCK NO | : | - - - |

1. Increase the REC CURR ( L and R ) adjustment value 10 to previous value. Record a color bar signal and confirm that the error rate is becomes within specification on playback the recorded portion.

NOTE: When confirm the error rate at the recorded portion, set the item C24 to AUTO.

2. If still out of specification, Increase the REC CURR ( L and R ) adjustment value each 10 step until plus 30 to previous value. Record a color bar signal and confirm that the error rate is becomes within specification on playback the recorded portion.
3. If still out of specification, decrease the REC CURR ( L and R ) adjustment value each 10 step until minus 30 to previous value. Record a color bar signal and confirm that the error rate is becomes within specification on playback the recorded portion.

NOTE: In case of error rate is becomes within specification by adjustment value increase or decrease 30 more than previous value, please set suitable value.

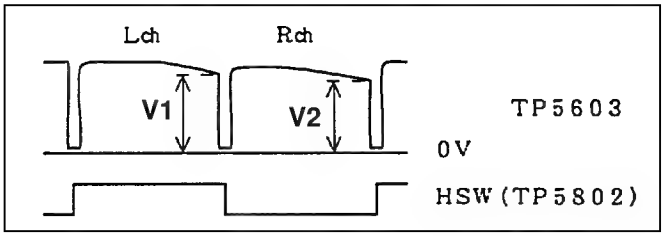
4. If error rate is not improved by REC CURR, please adjust REC FREQ in the same way as above item 1,2 and 3.

## 4-5. Envelope Level Confirmation & Adjustment (PB)(VTR1/VTR2)

| | |
|---|---|
| **BOARD** | RF AMP |
| **SPEC.** | V1, V2 = more than 2.0VDC |
| **TEST** | TP5603 |
| **ADJUST** | B11 : PB MAG L<br>B12 : PB MAG R |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM<br>**PAL:** VFM3680KM |
| **M. EQ** | Oscilloscope |

1. Playback a color bar portion of the alignment tape.
2. Confirm that the envelope level V1 and V2 are in the specification.
3. If it is out of specification, adjust B11 [PB MAG L] and B12 [PB MAG R] so that the envelope level is becomes more than 2.0VDC.

Note: This confirmation should be done before EQ Adjustment.

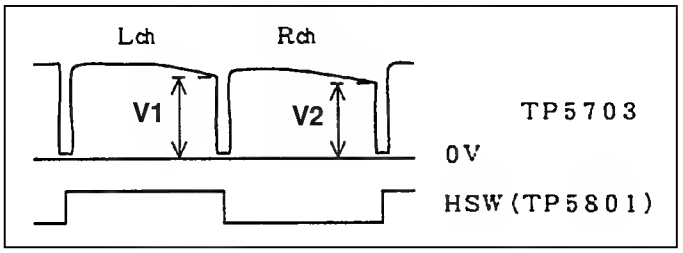



## 4-6. Envelope Level Confirmation & Adjustment (DV)(VTR1/VTR2)

| | |
|---|---|
| **BOARD** | RF AMP |
| **SPEC.** | V1, V2 = more than 2.0VDC |
| **TEST** | TP5703 |
| **ADJUST** | b09 : RP MAG L<br>b10 : RP MAG R |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | (Consumer DV Alignment Tape)<br>**NTSC:** VFM3010EDS<br>**PAL:** VFM3110EDS |
| **M. EQ** | Oscilloscope |

1. Playback a color bar portion of the alignment tape.
2. Confirm that the envelope level V1 and V2 are in the specification.
3. If it is out of specification, adjust b09 [RP MAG L] and b10 [RP MAG R] so that the envelope level is becomes more than 2.0VDC.

Note: This confirmation should be done before EQ Adjustment.



# 5. Analog P.C. Board (Analog 1: VTR1) (Analog 2: VTR2)

## 5-1. Audio Section

### 5-1-1. Preparation

1. In Eject mode, set as follows.

| Front SW | | |
|---|---|---|
| SPEAKER/HEADPHONES | : | V1, V2 |
| SWAP | : | NORM |
| AUDIO MONITOR | : | MIX |
| REMOTE/LOCAL | : | LOCAL |
| INPUT SEL | : | EXT |
| REC, PB VR | : | Click portion |
| **Menu** | | |
| CH1, CH2 IN LV | : | 0dB |
| CH1, CH2 OUT LV | : | 0dB |
| EMPHASIS | : | OFF |
| STOP MODE | : | REC |
| REC CUE | : | CH1+CH2 |
| SHTL AUD | : | OFF |

2. Confirm that the switches are as shown below.

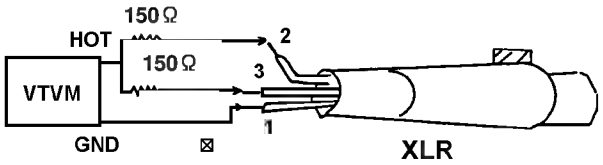
| Analog 1 P.C. Board | |
|---|---|
| SW40001 (CH1) | High side |
| SW40002 (CH2) | High side |
| **Analog 2 P.C. Board** | |
| SW45001 (CH1) | High side |
| SW45002 (CH2) | High side |
| LINE/MIC Select SW of Rear Jack | LINE side |

### 5-1-2. Output Balance Adjustment (VTR1)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) |
| **SPEC.** | less than 30mVrms |
| **TEST** | LINE OUT (CH1/CH2),<br>V1 MONITOR OUT |
| **ADJUST** | VR40302 (CH1)<br>VR40304 (CH2)<br>VR40902 (MON) |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM ( 0 to 10 min )<br>**PAL:** VFM3680KM ( 0 to 10 min ) |
| **M. EQ** | VTVM, TV Monitor |

1. Make the Following tool to measure the output balance.
2. Playback the alignment tape, and connect the following tool to the audio outputs.
3. Monitor the Monitor Out Signal (0dB: 1kHz) with the TV Monitor.
4. Adjust VRs so that the output level becomes less than 30mVrms.

**Spec : less than 30mVrms**



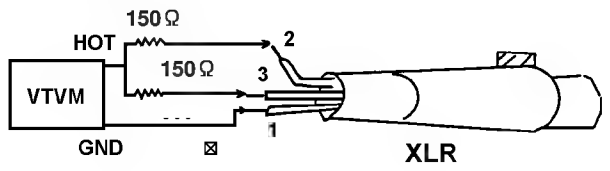

Note:
Perform this adjustment before the Output Level Adjustment.

## 5-1-3. Output Balance Adjustment (VTR2)

| | |
|---|---|
| **BOARD** | Analog 2 (VTR2) |
| **SPEC.** | less than 30mVrms |
| **TEST** | LINE OUT (CH1/CH2),<br>V2 MONITOR OUT |
| **ADJUST** | VR45302 (CH1)<br>VR45304 (CH2)<br>VR40903 (MON) (on Analog 1 P.C.B) |
| **INPUT** | LINE IN (CH1, CH2): 0dBu<br>1kHz sine wave (BAL) |
| **MODE** | EJECT |
| **TAPE** | --- |
| **M. EQ** | VTVM, TV Monitor |

1. Make the Following tool to measure the output balance.
2. Supply the above signal to the LINE IN.
3. Connect the following tool to each output, and adjust the VRs so that the voltage is less than 30mVrms.

**Spec : less than 30mVrms**




Note:
Perform this adjustment before the Output Level Adjustment.

## 5-1-4. Output Level Adjustment (VTR1/VTR2)

| | | |
|---|---|---|
| **BOARD** | Analog1 (VTR1)/Analog 2 (VTR2) | |
| **SPEC.** | 0dBu ± 0.2dB | |
| **TEST** | CH1, CH2 LINE OUT | |
| **ADJUST** | VTR1 | VTR2 |
| | VR40201 (CH1)<br>VR40202 (CH2) | VR45201 (CH1)<br>VR45202 (CH2) |
| **INPUT** | - | |
| **MODE** | PLAY | |
| **TAPE** | **NTSC:** VFM3580KM ( 0 to 10 min )<br>**PAL:** VFM3680KM ( 0 to 10 min ) | |
| **M. EQ** | VTVM, TV Monitor | |

1. Playback the alignment tape and adjust VR40201 (VTR1-CH1)/VR40202 (VTR1-CH2) and VR45201 (VTR2-CH1/VR45202 (VTR2-CH2) so that the LINE OUT level is in the specification..

Note:
PB VR should be in click portion.

## 5-1-5. Input Level Adjustment (VTR1)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) |
| **SPEC.** | -18.4dBu ± 1.0dB |
| **TEST** | TP40004 (CH1), TP40005 (CH2) |
| **ADJUST** | VR40001 (CH1)<br>VR40002 (CH2) |
| **INPUT** | LINE IN (CH1, CH2): 0dBu<br>1kHz sine wave (BAL) |
| **MODE** | EJECT |
| **TAPE** | --- |
| **M. EQ** | VTVM, TV Monitor |

1. Supply the above signal (1kHz, 0dBu).
2. Adjust VR40001 (CH1) so that the voltage at TP40004 (CH1) becomes in the specification.
3. Adjust VR40001 (CH1) so that the voltage at TP40002 (CH2) becomes in the specification.

Note:
REC VR should be in click portion.

## 5-1-6. Input Level Adjustment (VTR 2)

| | |
|---|---|
| **BOARD** | Analog 2 (VTR 2) |
| **SPEC.** | 0dBu ± 0.2dB |
| **TEST** | LINE OUT (CH1, CH2) |
| **ADJUST** | VR45001 (CH1)<br>VR45002 (CH2) |
| **INPUT** | LINE IN (CH1, CH2): 0dBu<br>1kHz sine wave (BAL) |
| **MODE** | EJECT |
| **TAPE** | --- |
| **M. EQ** | VTVM, TV Monitor |

1. Supply the signal (1kHz, 0dBu) to the LINE IN.
2. Adjust VR45001 (CH1) so that the voltage at LINE OUT (CH1) becomes 0dBu ± 0.2dB.
3. Adjust VR45002 (CH2) so that the voltage at LINE OUT (CH2) becomes 0dBu ± 0.2dB.

Note:
REC VR should be in click portion.

## 5-1-7. Meter Adjustment (VTR1/VTR2)

| | VTR1 | VTR2 |
|---|---|---|
| **BOARD** | Analog 1 (VTR 1) | Analog 2 (VTR 2) |
| **TEST** | V1 Level Meter | V2 Level Meter |
| **ADJUST** | VR68015 (CH1)<br>VR68016 (CH2)<br>(on the Display control P.C.B) | VR68013 (CH1)<br>VR68014 (CH2)<br>(on the Display control P.C.B) |
| **SPEC** | as follows | |
| **INPUT** | LINE IN (CH1, CH2): 0dBu<br>1kHz sine wave (BAL) | |
| **MODE** | REC (VTR1), EE (VTR2) | |
| **TAPE** | Self Recording Tape | |
| **M. EQ** | VTVM, TV Monitor | |

(VTR1)

1. Supply the above signal and adjust VR40309 (CH1) and VR40301 (CH2) so that the audio level at TP40303 (CH1) and TP40304 (CH2) are 0.29Vrms.
2. Press the EXT CHECK button and adjust VR68015 (CH1) and VR68016 (CH2) so that the audio level are at the ▼ position.
3. Release the EXT CHECK button and confirm that the audio level is -18dB position.

(VTR2)

1. Supply the above signal and press the EXT CHECK button.
2. Adjust VR45309 (CH1) and VR45310 (CH2) so that the audio level at TP45304 (CH1) and TP45305 (CH2) are 0.29Vrms.
3. Press the EXT CHECK button and adjust VR68013 (CH1) and VR68014 (CH2) so that the audio level are at the ▼ position.
4. Release the EXT CHECK button and confirm that the audio level is -18dB position.

## 5-1-8. CUE PB Level Adjustment (VTR1/VTR2)

| | VTR1 | VTR2 |
|---|---|---|
| **BOARD** | Analog 1 (VTR 1) | Analog 2 (VTR 2) |
| **TEST** | TP40701 | TP45701 |
| **ADJUST** | VR40701 | VR45701 |
| **SPEC** | -12dBu ± 0.5dB | |
| **INPUT** | --- | |
| **MODE** | PLAY | |
| **TAPE** | **NTSC:** VFM3580KM ( 0 to 10 min )<br>**PAL:** VFM3680KM ( 0 to 10 min ) | |
| **M. EQ** | VTVM, TV Monitor | |

1. Playback the alignment tape ( 0 to 10min : CUE REF LEVEL: 1kHz, 0dB).
2. Adjust VR40701 (VTR1)/VR45701 (VTR2) so that the level at TP40701 (VTR1)/TP45701 (VTR2) becomes in the specification.

Note:
Set the DOLBY NR to ON in the SERVICE MENU.

## 5-1-9. CUE Bias Current Adjustment (VTR1/VTR2)

| | VTR1 | VTR2 |
|---|---|---|
| **BOARD** | Analog 1 (VTR 1) | Analog 2 (VTR 2) |
| **TEST** | TP40601<br>TP40602 (GND) | TP45601<br>TP45602 (GND) |
| **ADJUST** | VR40601 | VR45601 |
| **SPEC** | 6.5mVrms ± 0.2mV | |
| **INPUT** | --- | |
| **MODE** | REC | |
| **TAPE** | Work Tape | |
| **M. EQ** | VTVM, TV Monitor | |

1. Connect the Vacuum Tube Volt Meter to TPs.
2. TP40601-TP40602 (GND).....VTR1
3. TP45601-TP45602 (GND).....VTR2
4. Adjust VR40601 (VTR1)/VR45601 (VTR2) so that the level becomes in the specification.

Note:
Set the VTVM mode to FLAT.

## 5-1-10. CUE REC/PB Level Adjustment (VTR1/VTR2)

| | VTR1 | VTR2 |
|---|---|---|
| **BOARD** | Analog 1 (VTR 1) | Analog 2 (VTR 2) |
| **TEST** | TP40701,<br>TP40603<br>Cue Out of Studio Model | TP45701. TP45603<br>Cue Out of Studio Model |
| **ADJUST** | VR40602 | VR45602 |
| **SPEC** | -12dBu ± 0.5dB | |
| **INPUT** | LINE IN (CH1, CH2): 0dBu<br>1kHz sine wave (BAL) | |
| **MODE** | Self REC and PB | |
| **TAPE** | Work Tape | |
| **M. EQ** | VTVM, TV Monitor | |

1. Make a self record and playback the above signal and measure the audio level at TP40701 (VTR1), TP45701 (VTR2).
2. Confirm the level difference between TP40701 (VTR1), TP45701 (VTR2) and -12dBu.
3. Adjust VR40602 (VTR1), VR45602 (VTR2) to compensate above level difference at TP40603 (VTR1), TP45603 (VTR2).
4. Make a self recording and playback.
5. Confirm that the audio level at TP40701 (VTR1), TP45701 (VTR2) is in the specification.
6. After adjustment, record above signal for a few minutes and playback by studio model so that the cue out of studio model is 0dBu ± 2dB.

## 5-1-11. Meter Output Level Adjustment (VTR1/VTR2)

| | VTR1 | VTR2 |
|---|---|---|
| **BOARD** | Analog 1 (VTR 1) | Analog 2 (VTR 2) |
| **TEST** | TP40303 (CH1)<br>TP40304 (CH2) | TP45304 (CH1)<br>TP45305 (CH2) |
| **ADJUST** | VR40309 (CH1)<br>VR40310 (CH2) | VR45309 (CH1)<br>VR45310 (CH2) |
| **SPEC** | 0.29mVrms ± 0.01 | |
| **INPUT** | LINE IN (CH1, CH2): 0dBu<br>1kHz sine wave (BAL) | |
| **MODE** | --- | |
| **TAPE** | --- | |
| **M. EQ** | VTVM, TV Monitor | |

1. Supply the above signal, and connect the VTVM to above TPs.

TP40303 (CH1), TP40304 (CH2).....VTR1
TP45304 (CH1), TP45305 (CH2).....VTR2

2. In EXT CHECK (Fine Mode), adjust VR40309 (VTR1-CH1), VR40310 (VTR1-CH2) VR45309 (VTR2-CH1), VR45310 (VTR2-CH2) so that the level becomes in the specification.

## 5-1-12. BEEP Sound Adjustment (VTR 2)

| | |
|---|---|
| **BOARD** | Analog 2 (VTR 2) |
| **SPEC.** | 4.0kHz ± 0.1KHz, 30mVrms ± 1 |
| **TEST** | TP45212 |
| **ADJUST** | VR45203, VR45204 |
| **INPUT** | --- |
| **MODE** | --- |
| **TAPE** | --- |
| **M. EQ** | Frequency Counter, VTVM |

1. Adjust VR45203 so that the frequency at TP45212 is 4.0kHz ± 20Hz.
2. Adjust VR45204 so that the voltage at TP45212 is 30mVrms ± 1.

# 5-2. Video Section (For AJ-LT85P)

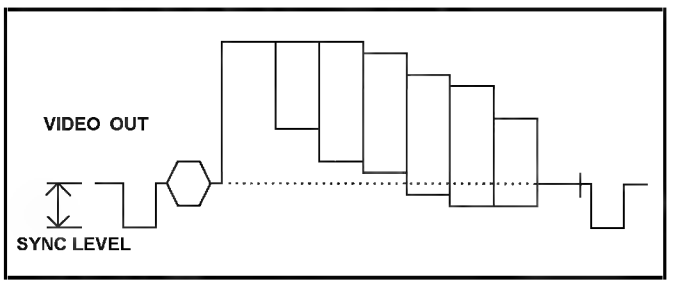
## 5-2-1. Preparation

1. Unless specially designation, in Analog 1 Adjustment, use the Input Connector, Output Connector and Encoder VR of VTR1.
   In Analog 2 Adjustment, use that of VTR2.
2. Encoder VRs (VIDEO , SET UP, HUE and CHROMA LEVEL) should be in center click portion.
3. Adjust after about 10 minutes warm up.
4. REF INPUT signal should be input the same as VIDEO INPUT signal or GEN LOCKED signal.
5. Set the OPERATION MODE to SEPARATE and SYNCHRO MODE to CF.
6. Set the item No.807:CMPNT OUT to B-CAM on the SET UP MENU.

## 5-2-2. Sync Level Confirmation & Adjustment (VTR1)

| | |
|---|---|
| **BOARD** | Analog 1 |
| **SPEC.** | 40IRE ± 2% |
| **TEST** | PB VIDEO/Y OUT |
| **ADJUST** | VR7006 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color Bar Portion of VFM3580KM |
| **M. EQ** | WFM Monitor |

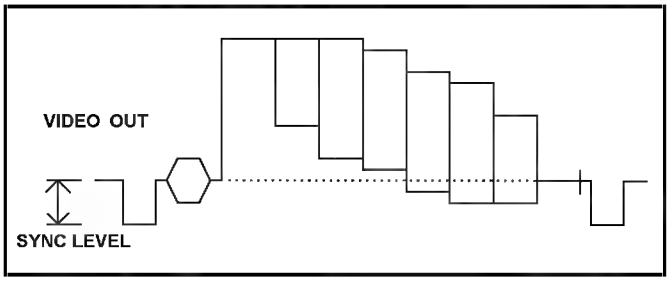
1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Confirm that the sync level is 40IRE ± 2%. If it is out of the specification, adjust VR7006 so that the sync level becomes 40IRE ± 2%.



## 5-2-3. Sync Level Confirmation & Adjustment (VTR2)

| | |
|---|---|
| **BOARD** | Analog 2 |
| **SPEC.** | 40IRE ± 2% |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7006 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color Bar Portion of VFM3680KM |
| **M. EQ** | WFM Monitor |

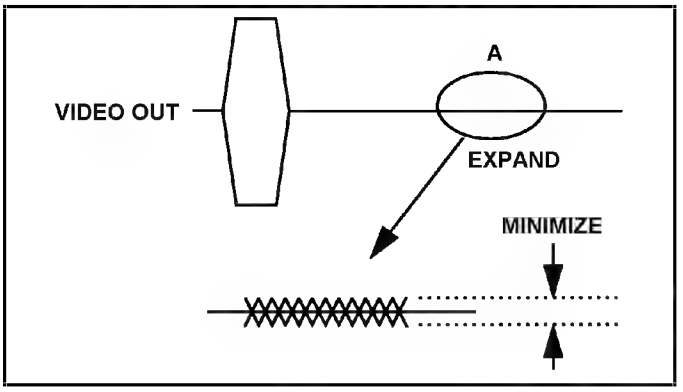
1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Confirm that the sync level is 40IRE ± 2%, if it is out of specification, adjust VR7006 so that the sync level is 40IRE ± 2%.




## 5-2-4. Carrier Balance Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Less than 5mVp-p |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D01:PR BAL D02:PB BAL |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR portion of<br>VFM3580KM (22 to 26 min) |
| **M. EQ** | WFM Monitor |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Use the WFM Monitor in signal line sweep, set the chroma filter to ON and rise the gain full.
3. Adjust PR BAL and PB BAL so that the level of carrier leak is minimum as shown below.
4. If it can not adjust by EVR, adjust VR7208(PB BAL) and VR7206(PR BAL) on the P.C.Board.

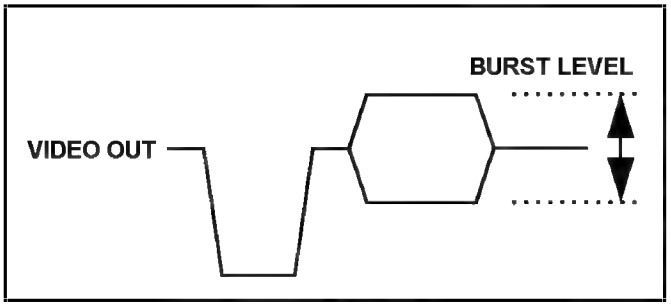



Note:
Set the time axis to MAG and adjust.

## 5-2-5. Burst Level Confirmation & Adjustment] (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 40IRE ± 1% |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7207 (BURST LEV) |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color Bar Portion of VFM3580KM |
| **M. EQ** | WFM Monitor |

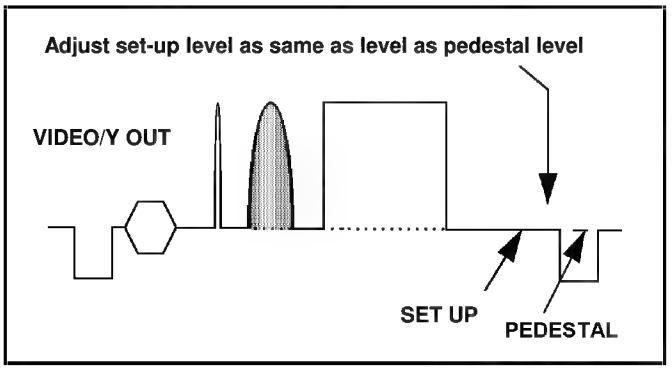
1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Confirm that the burst level is 40IRE ± 1%. If it is out of specification, adjust VR7207 so that the burst level becomes 40IRE ± 1%.




## 5-2-6. Composite Set-Up Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Setup level = Pedestal level ±. 0.5 IRE |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7004 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR<br>VFM3580KM (22 to 26 min) |
| **M. EQ** | WFM Monitor |

1. Set the V OUT SEL to CMPST on the SYSTEM SET UP menu.
2. Confirm that the set up level align with the pedestal level (± 0.5 IRE). If it is out of specification, adjust VR7004 so that the set up level is Pedestal level ± 0.5 IRE.



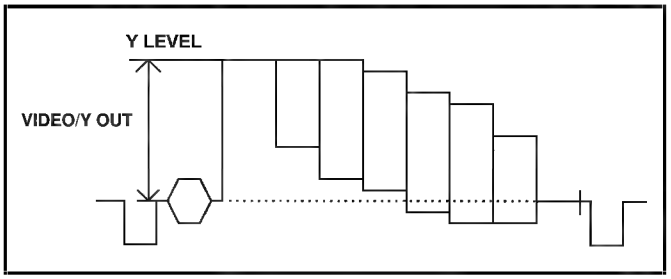

Note:
The Set-up Level VR on the Side Panel should be in center click portion.

Note:
As this signal has some carrier leak and noise etc, set the Y Filter switch to ON and rise the gain.

## 5-2-7. Composite Y Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 100 IRE ± 1% |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D04:V LEV OFST |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color Bar Portion of VFM3580KM |
| **M. EQ** | WFM Monitor |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust V LEV OFST so that the Y level of the composite video output becomes 100 IRE ± 1%.

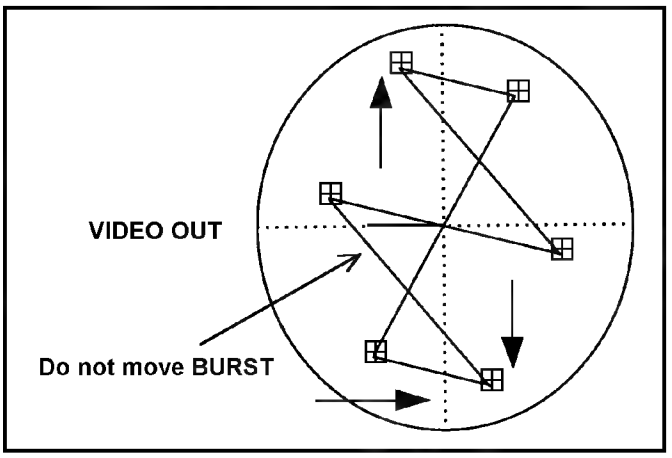



3. If it can not adjust by EVR on VIDEO ADJUST MENU, Adjust VR7007 (V LEV OFST) and VR7010 (VIDEO LEV FINE).

## 5-2-8. Vector Adjustment (VTR1/VTR2)

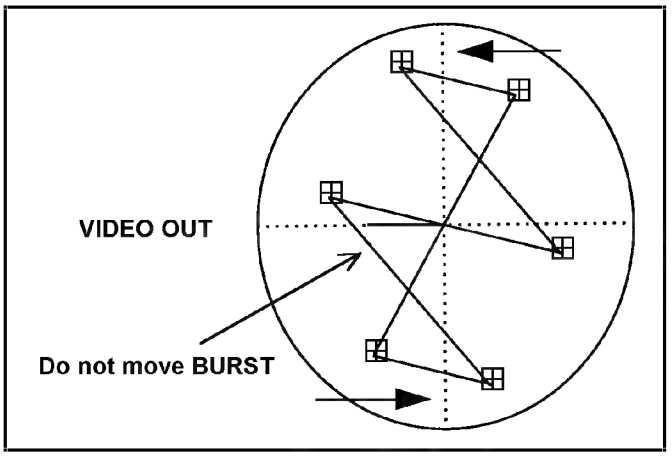
| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Center of the square mark |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D05:HUE OFST<br>VR7210 <QUAD><br>VR7214 <HUE OFS><br>VR7204 <ENC BY><br>VR7202 <ENC RY> |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color Bar Portion of VFM3680KM |
| **M. EQ** | Vector Scope |

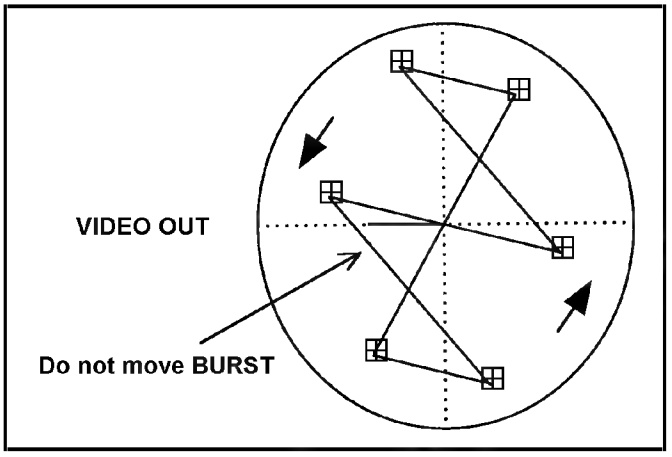
1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Set the burst position on the Vector Scope at correct position.
3. Adjust HUE OFST so that the vectors are center of the square mark. If those are out of the specification, adjust by VR7210, VR7214, VR7204 and VR7202.

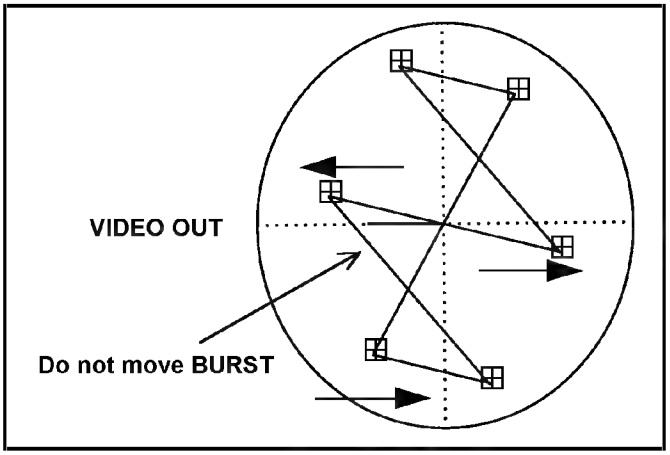



4. Adjust the each vector point to the center of the square mark.
   VR7210 : Diagonal Direction
   VR7214 : Rotary Direction
   VR7204 : Horizontal Direction
   VR7202 : Vertical Direction

Note:
CHROMA, VIDEO LEVEL and CHROMA PHASE VRs are in center click portion.



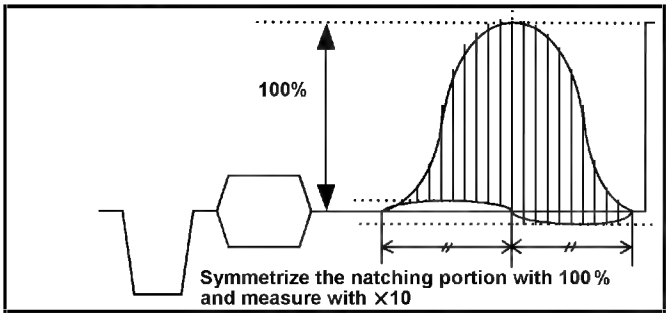




## 5-2-9. Composite YC Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0 ± 10ns |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7215 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR Portion<br>VFM3580KM (22 to 26 min) |
| **M. EQ** | WFM Monitor |

1. Set the item “V OUT SEL” to CMPST on the SYSTEM SET UP menu.
2. Playback the alignment tape (PULSE & BAR) and confirm that the hatching portion of figure is symmetric by left and right. If it is not, adjust VR7215 so that the hatching portion becomes symmetric.



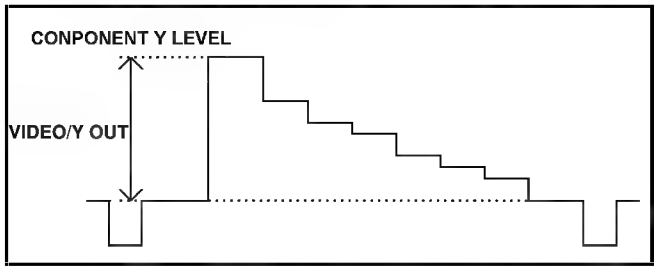

Note:
When adjust it, adjust the chroma level to 100%.

Note:
After this adjustment it will change the Pr-Pb Timing, Vector, and SCH. Please re-confirm and readjust the Pr-Pb Timing, Vector and SCH after this adjustment.

## 5-2-10 Component Y Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 100IRE(0.714Vp-p) ± 1% |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7008 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color bar portion of VFM3580KM |
| **M.EQ** | WFM Scope |

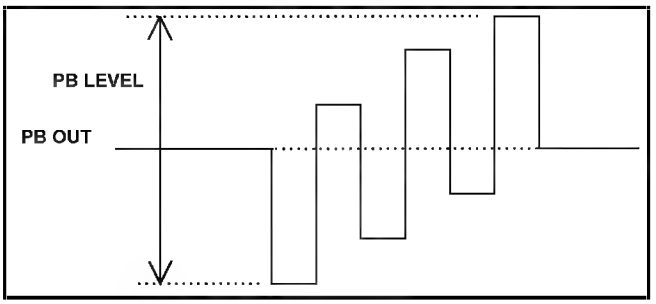
1. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Playback the color bar portion of the Alignment Tape.
3. Confirm that the Y Level is in the specification, if it is not, adjust VR7008 so that the component Y Level is in the specification.




## 5-2-11 Component Pb Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0.7V ± 1% |
| **TEST** | PB OUT |
| **ADJUST** | VR7606 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color bar portion of VFM3580KM |
| **M.EQ** | WFM Monitor |

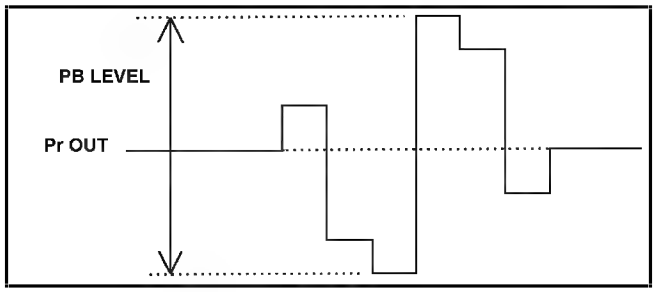
1. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Playback the color bar portion of the Alignment Tape.
3. Confirm that the Pb level is in the specification, if it is not, adjust VR7606 so that the Pb Level of component out is in the specification.



## 5-2-12 Component Pr Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0.7V ± 1% |
| **TEST** | PR_OUT |
| **ADJUST** | VR7605 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Color bar portion of VFM3580KM |
| **M.EQ** | WFM Monitor |

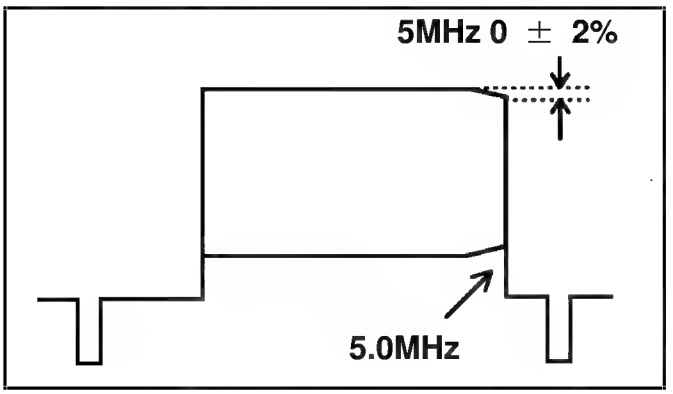
1. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Playback the color bar portion of the Alignment Tape.
3. Confirm that the Pr level is in the specification, if it is not, adjust VR7605 so that the Pr Level of Component out is in the specification.




## 5-2-13 Component Y Frequency Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 5MHz = 0 ± 2% |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7009 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | H SWEEP portion of VFM3580KM |
| **M.EQ** | WFM Monitor |

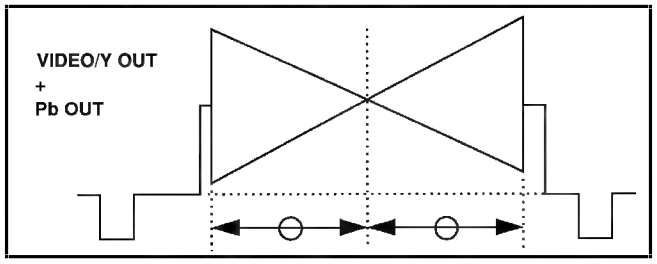
1. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Playback the H sweep portion of the Alignment Tape.
3. Adjust VR7009 so that the frequency characteristic is flat.
4. The right part of the H sweep frequency is 5MHz and the tolerance is 0±2%.



## 5-2-14 Component Y-Pb Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0 ± 10nS |
| **TEST** | PB_OUT, VIDEO/Y OUT |
| **ADJUST** | VR7603 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | BOWTIE portion of VFM3580KM |
| **M.EQ** | WFM Monitor |

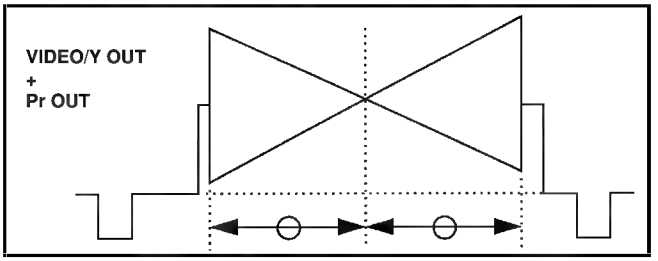
1. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Playback the BOWTIE portion of the Alignment Tape.
3. Set the WFM monitor in the Y-Pb timing adjustment mode.
4. Confirm that the Y-Pb timing is in the specification, if it is not, adjust VR7603 so that the cross point of envelope is at the center.




## 5-2-15 Component Y-Pr Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0 ± 10nS |
| **TEST** | PR_OUT, VIDEO/Y OUT |
| **ADJUST** | VR7601 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | BOWTIE portion of VFM3580KM |
| **M.EQ** | WFM Monitor |

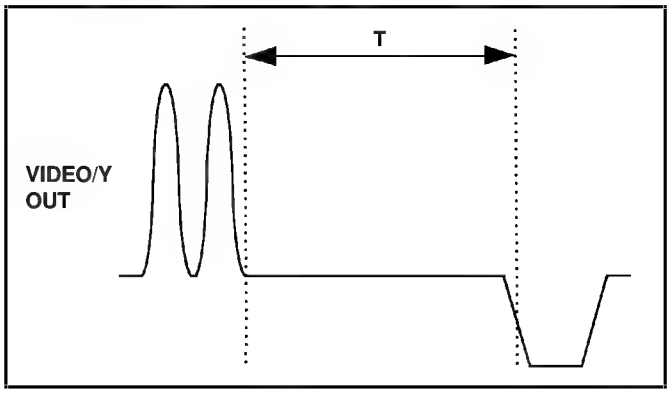
1. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Playback the BOWTIE portion of the Alignment Tape.
3. Set the WFM monitor in the Y-Pr timing measuring mode.
4. Confirm that the Y-Pr timing is in the specification, if it is not, adjust VR7601so that the cross point of envelope is at the center.



## 5-2-16. OSD Character Position Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | VTR1 T=4.2 ± 0.2µsec.<br>VTR2 T=5 ± 0.2µsec. |
| **TEST** | VIDEO MONITOR OUT |
| **ADJUST** | VC7401 |
| **INPUT** | VIDEO IN: 0% Flat Field |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | WFM Monitor |

1. Set the item "LCD SUPER" to ON on the BASIC SET UP menu.
2. Confirm that the T between the Sync edge and the CHAR is in the specification.
3. If it is out of the specification, adjust VC7401 so that T becomes 4.2±0.2µsec. (VTR1)/5±0.2µsec (VTR2).




## 5-2-17. 13.5M PLL Offset Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0 ± 0.1V |
| **TEST** | TP3701 |
| **ADJUST** | VL3701 |
| **INPUT** | VIDEO IN : 75% Color bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

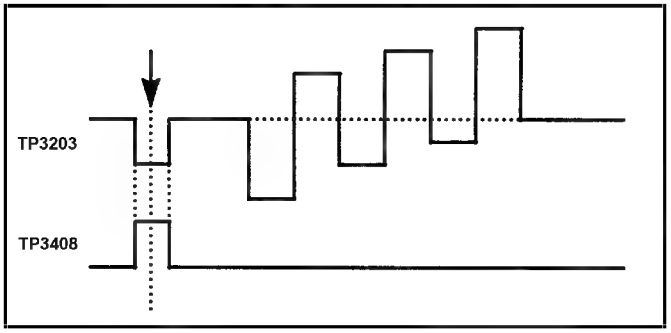
1. Adjust VL3701 so that the DC level is in the specification.

## 5-2-18. RSTW Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0 ± 100nsec. |
| **TEST** | TP3408 (BGP), TP3203 (PB BLK DC) |
| **ADJUST** | VR3211 |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

1. Adjust VR3211 so that the BURST portion at TP3203 is the same phase as the phase which is center of the pulse at TP3408.

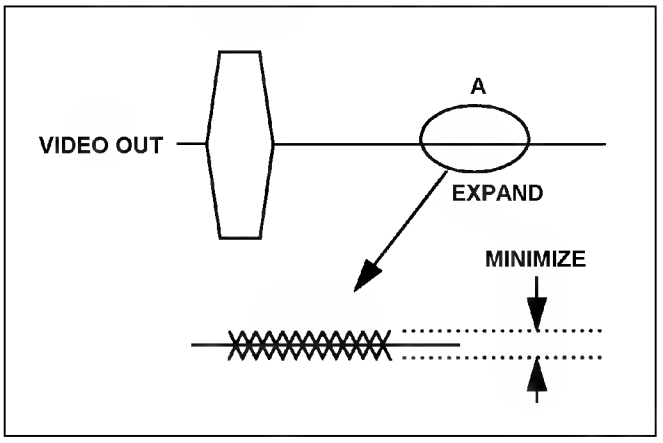
Note:
It is not locked, turn VR3405 to locked.




## 5-2-19. PR/PB SIGNAL BALANCE Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Less than 8mVp-p. |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D06:REC PR BAL, D07:REC PB BAL |
| **INPUT** | VIDEO IN: 50% Flat field |
| **MODE** | REC(VTR1), EE(VTR2) |
| **TAPE** | Work tape |
| **M. EQ** | WFM Monitor |

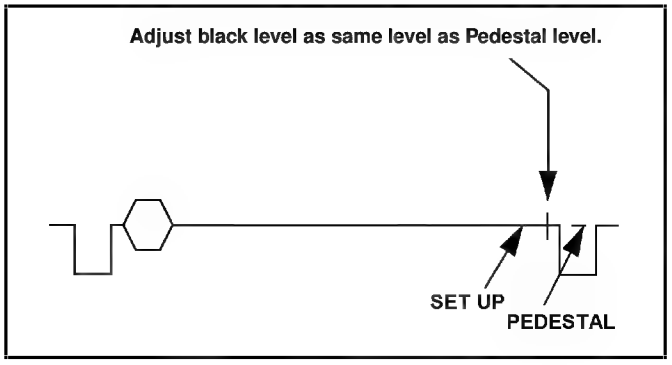
1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Use the WFM Monitor in single line sweep, put the chroma filter is ON and put up the gain to full level.
3. Set the time axis to MAG.
4. Adjust REC PR BAL and REC PB BAL so that the carrier leak is minimum.
5. If can not adjust by EVR, adjust VR3502(PR CLAMP DC) and VR3602(PB CLAMP DC) so that the level is in specification.



## 5-2-20. AD Y Clamp Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Set-up level = Pedestal level ± 0.5IRE |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D08:Y CLAMP DC |
| **INPUT** | VIDEO IN : 0% FLAT FIELD |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Confirm that the Set-up level is pedestal level ±0.5IRE, if it is out of the specification, adjust Y CLAMP DC so that the level is in specification.
3. If it can not adjust by EVR, adjust VR3501 so that the Set-up level becomes pedestal level ± 0.5IRE.



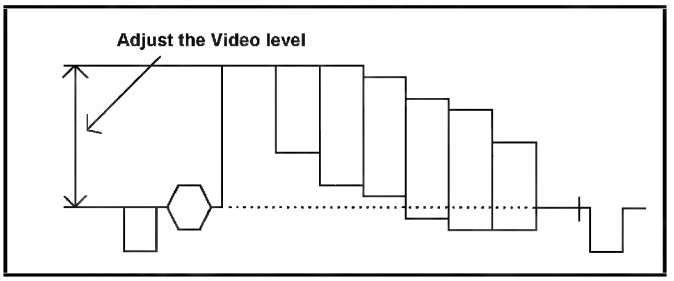

Note:
As the this signal has some carrier leak and noise etc. Put the Y filter switch of the WFM Monitor to "ON" and put the gain of the WFM Monitor up, and adjust.

## 5-2-21. AD Y Input Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 100 ± 1IRE |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D09:CPS Y LEV |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust CPS Y LEV so that the level is 100 ± 1IRE.
3. If it can not adjust by EVR, adjust VR3006 (CPS AD LEV).

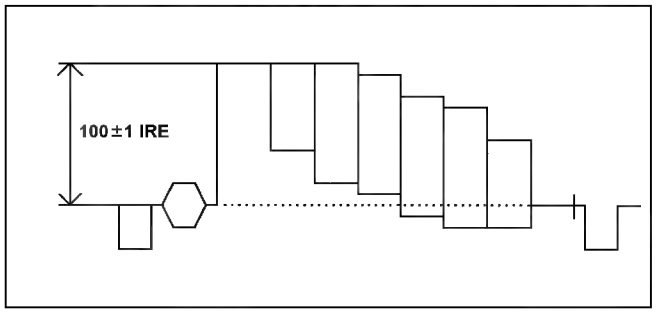
Note:
BLACK LEVEL VR and VIDEO LEVEL VR should be in click portion.



## 5-2-22. MON EE Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 100 ± 1IRE |
| **TEST** | VIDEO MONITOR OUT |
| **ADJUST** | VR7402 |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | WFM Monitor |

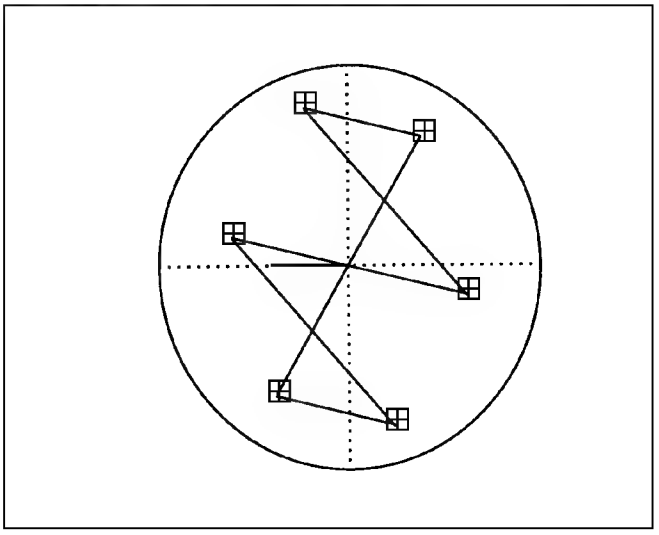
1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Keep pressing the EXT CHECK button and Confirm that the video level is 100 ± 1IRE. if it is out of the specification, adjust VR7402 so that the level becomes 100 ± 1IRE.




## 5-2-23. MON EE C Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | Each vector point is center of the square mark (But the phase direction difference is ± 5%) |
| **TEST** | VIDEO MON OUT |
| **ADJUST** | VR3002 |
| **INPUT** | VIDEO IN: 75% color bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Vector Scope |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Keep pressing the EXT CHECK button and adjust VR3002 so that the each vector point is center of the square mark (But the phase direction difference is ± 5%).

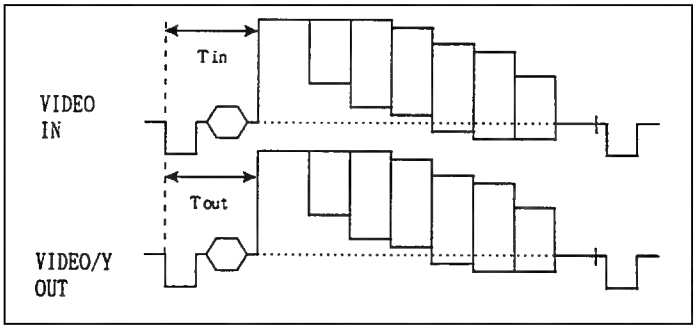


## 5-2-24. Y Signal Timing Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | T out = T in ± 10 nsec |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR3701 |
| **INPUT** | VIDEO/Y IN : 75% Color Bar |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust VR3701 so that the phase of T in and T out position in the specification.

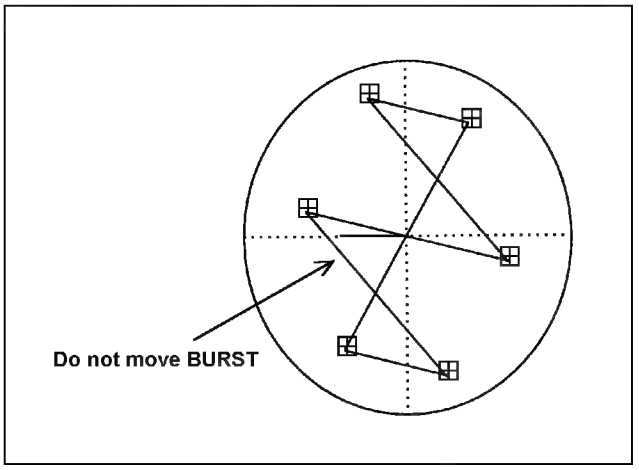
Note:
Before this adjustment, the digital circuit and SCH phase video adjustment should had been completed.




## 5-2-25. CHROMA Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Vector Point is Center of Square Mark |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D10:AXIS, D11:C LEV |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | REC (VTR1) / EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | Vector Scope |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust AXIS and C LEV so that the each vector points becomes on center of the square marks.
3. If it can not adjust by EVR, adjust VR3405 (AXIS 1), VR3213 (DEC PB LEV) and VR3214 (DEC PR LEV).



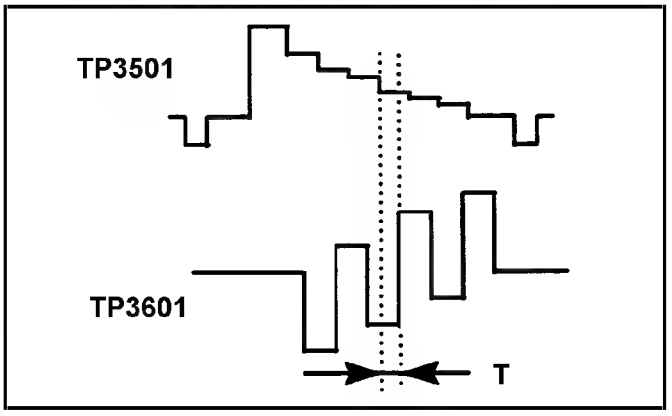

NOTE:
VIDEO LEVEL, HUE and CHROMA LEV VR should be in center click position.

## 5-2-26. AD Y PB Timing Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | T=0 ± 10nsec. |
| **TEST** | TP3601 (AD PB), TP3501 (AD Y) |
| **ADJUST** | VR3203 |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | REC (VTR1) / EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | Oscilloscope |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust VR3203 so that the changing portion between Green and Magenta is in the specification.

Note:
When adjust it, the oscilloscope is DELAY mode to expand the changing portion.

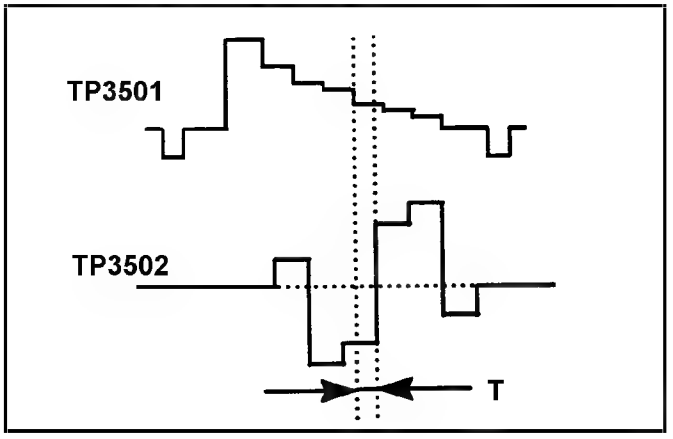



## 5-2-27. AD Y PR Timing Adjustment (VTR1/VTR 2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | T=0 ± 10nsec. |
| **TEST** | TP3502 (AD PR), TP3501 (AD Y) |
| **ADJUST** | VR3208 |
| **INPUT** | VIDEO IN: 75% Color Bar |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work tape |
| **M. EQ** | Oscilloscope |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust VR3208 so that the changing portion between Green and Magenta is in the specification.

Note:
When adjust it, the oscilloscope is DELAY mode to expand the changing portion.

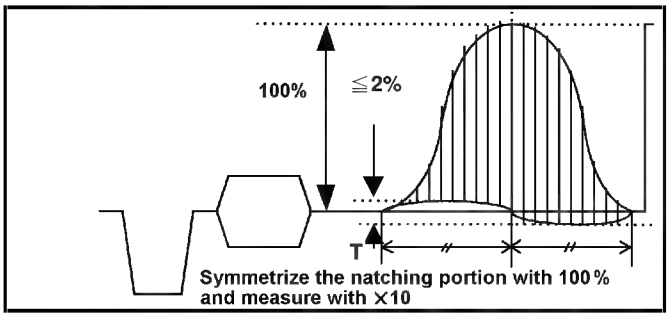


## 5-2-28. REC YC Timing Confirmation (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | T=0 ± 20ns |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | --- |
| **INPUT** | VIDEO IN : 2T PULSE & BAR |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

1. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Confirm that the hatching portion of below figure is symmetric by left and right, and confirm that the YC timing is in specification.
3. If it is out of specification, perform VR7215 so that the YC timing is 0 ± 20ns (≦2%).

Note:
When confirm it, adjust the chroma Level VR properly.
Set the Chroma Level VR to click position after adjustment.




Note:
If adjust the VR7215, confirm the Vector and Burst adjustment.

## 5-2-29. SCH Detection Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | as follows |
| **TEST** | TP3207 (IN SCH) |
| **ADJUST** | VR3201, VR3212 |
| **INPUT** | VIDEO IN: SHC 0° signal |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | SCH Meter |

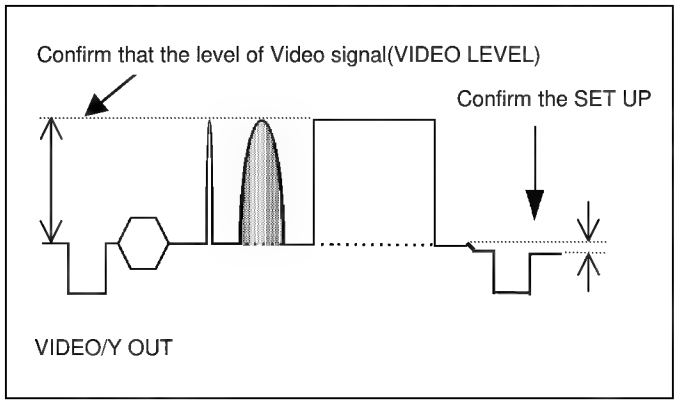
(VTR1)
1. Supply the VIDEO OUT signal of VTR2 to the VIDEO IN of VTR1
2. Open the SYSTEM SET UP MENU and adjust VTR2 SCH to -70° by SCH FINE.
3. Adjust VR3201 clockwise and confirm that the DC level at TP3207 goes to H.
4. Adjust VR3201 counterclockwise so that the DC level at TP3207 goes to L.
5. Adjust VTR2 SCH to +70° by SCH FINE.
6. Adjust VR3212 clockwise and confirm that the DC level at TP3207 goes to H.
7. Adjust VR3212 counterclockwise so that the DC level at TP3207 goes to L.
8. Adjust VTR2 SCH to 0°.

(VTR2)
1. Supply the PB OUT signal of VTR1 to the VIDEO IN of VTR2.
2. Open the SYSTEM ADJUST MENU and adjust VTR1 SCH to -70°.
3. Adjust VR3201 clockwise and confirm that the DC level at TP3207 goes to H.
4. Adjust VR3201 counterclockwise so that the DC level at TP3207 goes to L.
5. Adjust VTR2 SCH to +70° by SCH FINE.
6. Adjust VR3212 clockwise and confirm that the DC level at TP3207 goes to H.
7. Adjust VR3212 counterclockwise so that the DC level at TP3207 goes to L.
8. Adjust VTR1 SCH to 0°.

## 5-2-30. Set up ADD Confirmation (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | VIDEO LEVEL : 100 ± 2 IRE<br>SET UP : 7.5 ± 1 IRE |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D22:SET UP ADD, D23:V LEV ADD |
| **INPUT** | ----- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR portion of VFM3580KM |
| **M. EQ** | WFM Monitor |

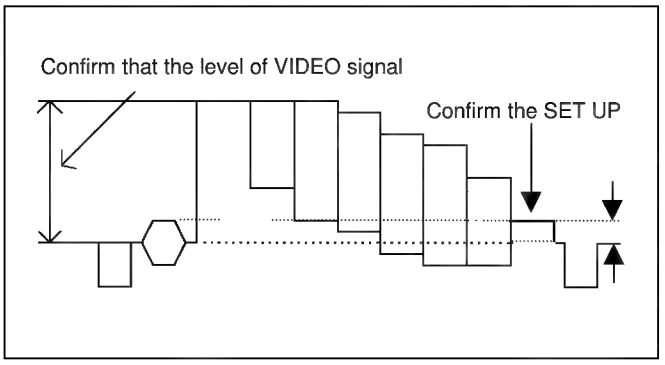
1. Open the VIDEO ADJUST menu of SERVICE menu and set the item D27:V SET UP to ON.
2. Set the item 608:V OUT SET UP to ADD on the VIDEO SET UP menu.
3. Set the item 806:V OUT SEL to CMPST on the SYSTEM SET UP menu.
4. Confirm that the VIDEO LEVEL and SET UP LEVEL so that the level is in the specification. If it is out of specification, adjust EVR "SET UP ADD" and "V LEV ADD",

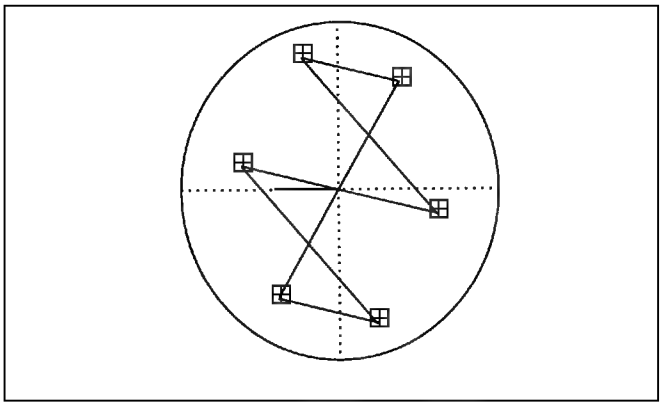



## 5-2-31. Set up Delete Confirmation (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | VIDEO LEVEL : 100 ± 2 IRE<br>SET UP : 7.5 ± 1 IRE<br>Shown below |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | (VIDEO ADJUST)<br>D24:Y CLAMP CUT,<br>D25:C LEVEL CUT<br>D26:CPS LEV CUT |
| **INPUT** | VIDEO IN : 75% color bar |
| **MODE** | REC(VTR1) / EE(VTR2) |
| **TAPE** | Work tape |
| **M. EQ** | WFM Monitor, Vector scope |

1. Open the VIDEO ADJUST menu of SERVICE menu and set the item D27:V SET UP to ON.
2. Set the item 608:V OUT SET UP to ADD on the VIDEO SET UP menu.
3. Set the item 806:V OUT SEL to CMPST on the SYSTEM SET UP menu.
4. Confirm that the VIDEO LEVEL and SET UP LEVEL so that the level is in the specification. And each vector point is center of the square mark.
5. If it is out of specification, adjust EVR "Y CLAMP CUT", "C LEVEL CUT" and "CPS LEVEL CUT",



# 5-2. Video Section (For AJ-LT85E)

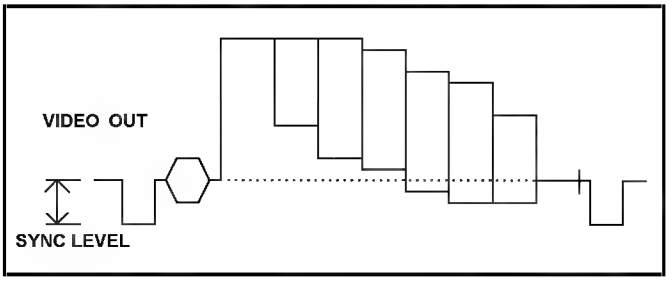
## 5-2-1. Preparation

7. Unless specially designation, in Analog 1 Adjustment, use the Input Connector, Output Connector and Encoder VR of VTR1.
8. In Analog 2 Adjustment, use that of VTR2.
9. Encoder VRs (VIDEO , BLACK, and CHROMA LEVEL , CHROMA PHASE ) should be in center click portion.
10. Adjust after about 10 minutes warm up.
11. Colour bar signal should be 100% with 7.5 IRE SET UP.
12. Set the OPERATION MODE to SEPARATE and SYNCHRO MODE to CF.

## 5-2-2. Sync Level Confirmation & Adjustment (VTR1)

| | |
|---|---|
| **BOARD** | Analog 1 |
| **SPEC.** | 0.3V ± 1% |
| **TEST** | Video Out |
| **ADJUST** | VR7006 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour Bar Portion of VFM3680KM |
| **M. EQ** | WFM Monitor |

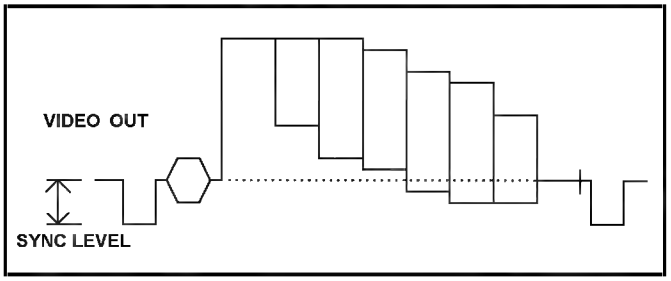
3. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
4. Confirm that the sync level is 0.3V ± 1%. If it is out of the specification, adjust VR7006 so that the sync level becomes 0.3V ± 1%.
5. Set the item "V OUT SEL" to CMPNT on the SESTEM SET UP menu.
6. Confirm that the sync level and if it is out of specification, adjust VR7006.



## 5-2-3. Sync Level Confirmation & Adjustment (VTR2)

| | |
|---|---|
| **BOARD** | Analog 2 |
| **SPEC.** | 0.3V ± 1% |
| **TEST** | Video Out |
| **ADJUST** | VR7006 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour Bar Portion of VFM3680KM |
| **M. EQ** | WFM Monitor |

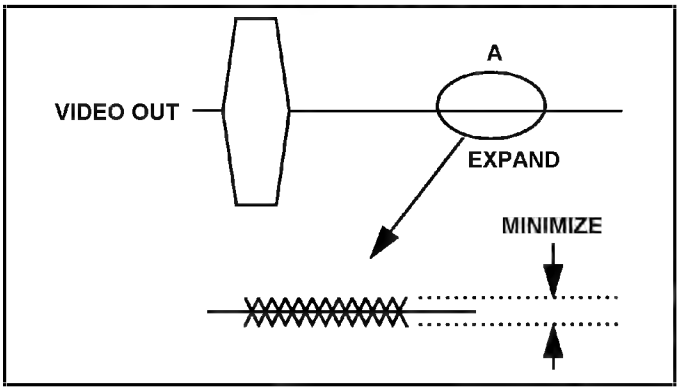
3. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
4. Confirm that the sync level is 0.3V ± 1%, if it is out of specification, adjust VR7006 so that the sync level is 0.3V ± 1%.
5. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
6. Confirm that the sync level and if it is out of specification, adjust VR7006.




## 5-2-4. Carrier Balance Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Less than 6mVp-p |
| **TEST** | Video Out / Y Out |
| **ADJUST** | (VIDEO ADJUST)<br>D01:PB BAL<br>D02:PR BAL |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR<br>VFM3680KM (22 to 26 min) |
| **M. EQ** | WFM Monitor |

5. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
6. Open the VIDEO ADJUST menu on Service menu.
7. Use the WFM Monitor in signal line sweep, set the chroma filter to ON and rise the gain full.
8. Adjust PR BAL and PB BAL so that the level of carrier leak is minimum as shown below.
9. If it can not adjust by EVR, adjust VR7208(PB BAL) and VR7206(PR BAL) on the P.C.Board.

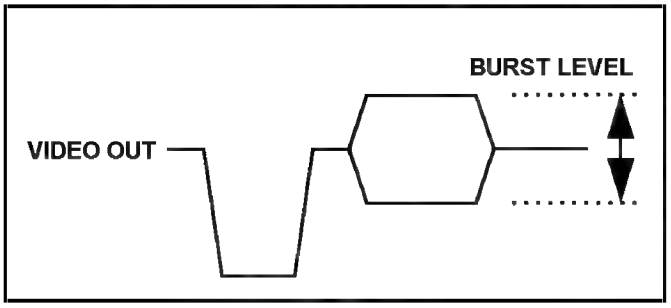


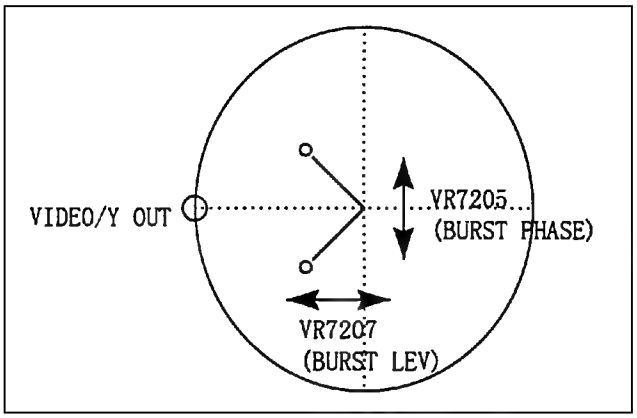

Note:
Set the time axis to MAG and adjust.

## 5-2-5. Burst Level Confirmation & Adjustment] (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0.3V ± 2% |
| **TEST** | Video/Y Out |
| **ADJUST** | VR7207 (BURST LEV), VR7205 (BURST PHASE) |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour Bar Portion of VFM3680KM |
| **M. EQ** | WFM Monitor |

3. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
4. Confirm that the burst level is 0.3V ± 2%. If it is out of specification, adjust VR7207 so that the burst level becomes 0.3V ± 2%.
5. Confirm that the burst position on the Vector Scope at correct position.If it is not, adjust VR7205 so that the burst phase becomes correct position.

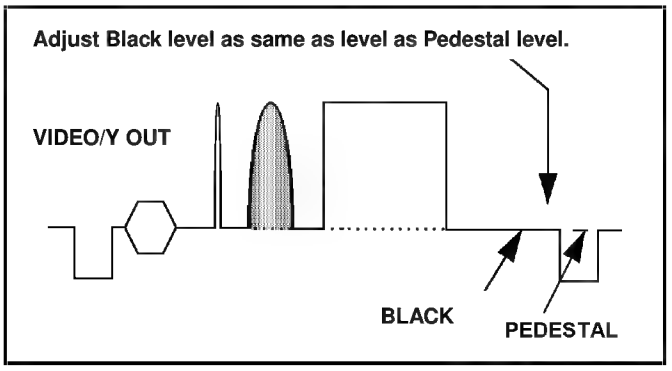



## 5-2-6. Composite Black Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Black level = Pedestal level ±.7 mv |
| **TEST** | Video Out / Y Out |
| **ADJUST** | VR7004 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR<br>VFM3680KM (22 to 26 min) |
| **M. EQ** | WFM Monitor |

3. Set the V OUT SEL to CMPST on the SYSTEM SET UP menu.
4. Confirm that the black level align with the pedestal level (±7 mv). If it is out of specification, adjust VR7004 so that the black level is Pedestal level ±7 mv.



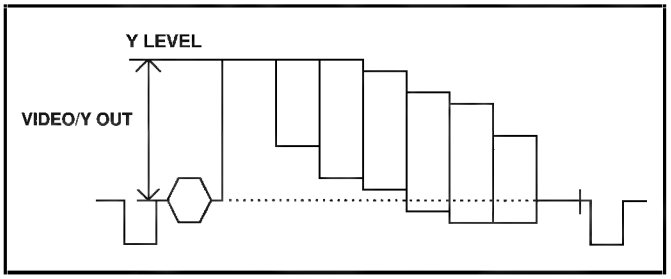

Note:
The Black Level VR on the Side Panel should be in center click portion.

Note:
As this signal has some carrier leak and noise etc, set the Y Filter switch to ON and rise the gain.

## 5-2-7. Composite Y Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0.7V ± 2% |
| **TEST** | Video Out / Y Out |
| **ADJUST** | (VIDEO ADJUST)<br>D04:V LEV OFST |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour Bar Portion of VFM3680KM |
| **M. EQ** | WFM Monitor |

3. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
4. Open the VIDEO ADJUST menu on Service menu.
5. Adjust V LEV OFST so that the Y level of the composite video output becomes 0.7V ± 2%.

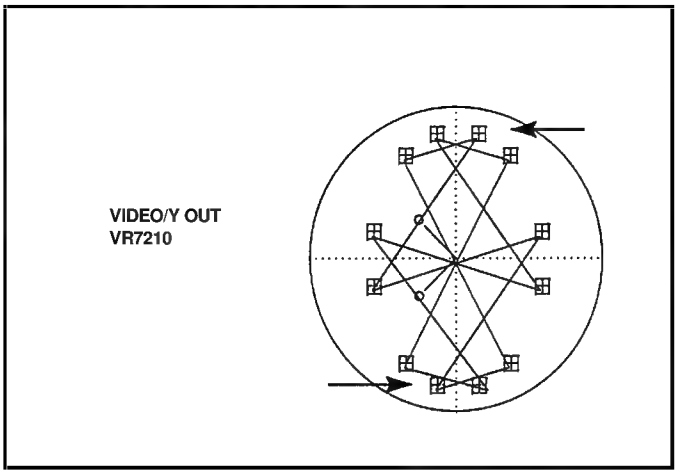



3. If it can not adjust by EVR on VIDEO ADJUST MENU, Adjust VR7007 (V LEV OFST) and VR7010 (VIDEO LEV FINE).

## 5-2-8. Vector Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Center of the square mark |
| **TEST** | Video/Y Out |
| **ADJUST** | (VIDEO ADJUST)<br>D05:HUE OFST<br>VR7210 <QUAD><br>VC7201<PAL PHASE><br>VR7214 <HUE OFS><br>VR7204 <ENC BY><br>VR7202 <ENC RY> |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour Bar Portion of VFM3680KM |
| **M. EQ** | Vector Scope |

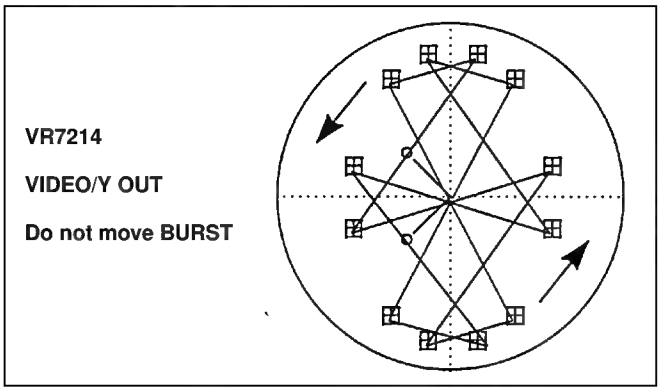
5. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
6. Open the VIDEO ADJUST menu on Service menu.
7. Set the burst position on the Vector Scope at correct position.
8. Adjust HUE OFST so that the vectors are center of the square mark. If those are out of the specification, adjust by VR7210, VR7214, VR7204, VR7202 and VC7201.

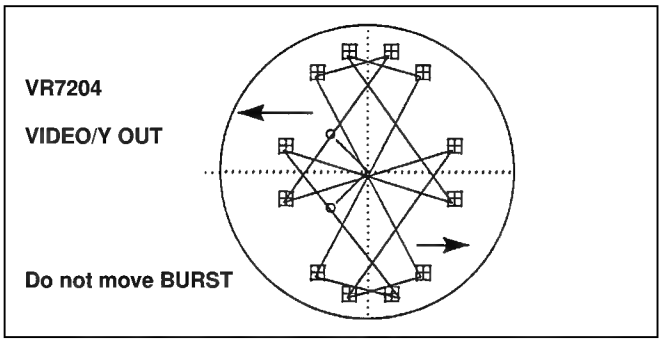


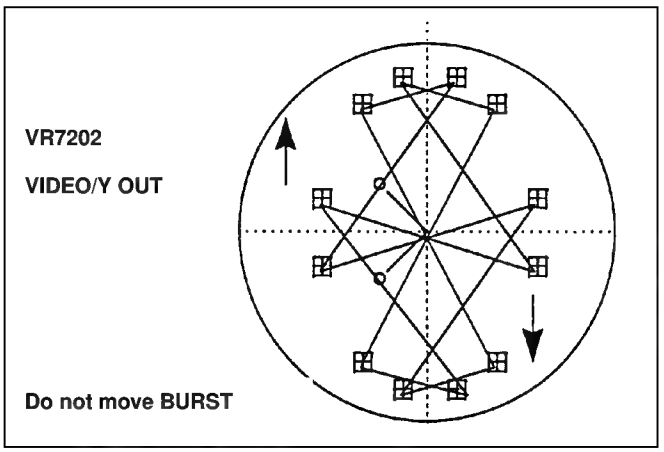

9. Adjust the each vector point to the center of the square mark.
   VR7210 : Diagonal Direction
   VR7214 : Rotary Direction
   VR7204 : Horizontal Direction
   VR7202 : Vertical Direction

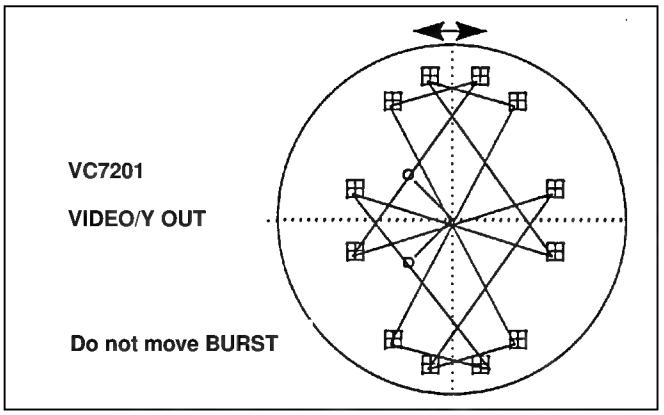
Note:
CHROMA, VIDEO LEVEL and CHROMA PHASE VRs

are in center click portion.



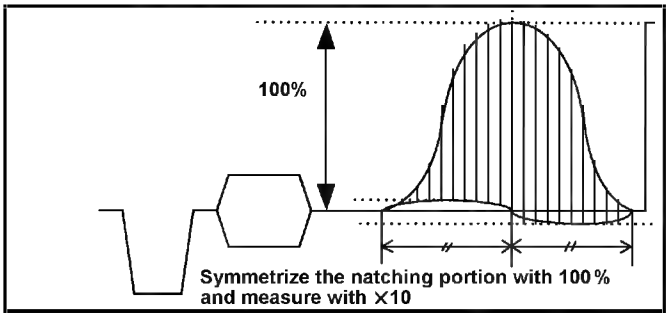




## 5-2-9. Composite YC Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0 ± 10ns |
| **TEST** | Video/Y Out |
| **ADJUST** | VR7215 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | PULSE & BAR Portion<br>VFM3680KM (22 to 26 min) |
| **M. EQ** | WFM Monitor |

3. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
4. Playback the alignment tape (PULSE & BAR) and symmetric by left and right. If it is not, adjust VR7215 so that the hatching portion becomes symmetric.



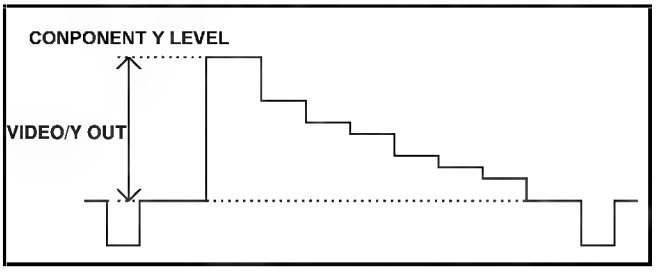

Note:
When adjust it, adjust the chroma level to 100%.

Note:
After this adjustment it will change the Pr-Pb Timing, Vector, and SCH. Please re-confirm and readjust the Pr-Pb Timing, Vector and SCH after this adjustment.

## 5-2-10 Component Y Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 700mV ± 1% |
| **TEST** | Video/Y Out |
| **ADJUST** | VR7008 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour bar portion<br>VFM3680KM (0min to 10min) |
| **M.EQ** | WFM Scope |

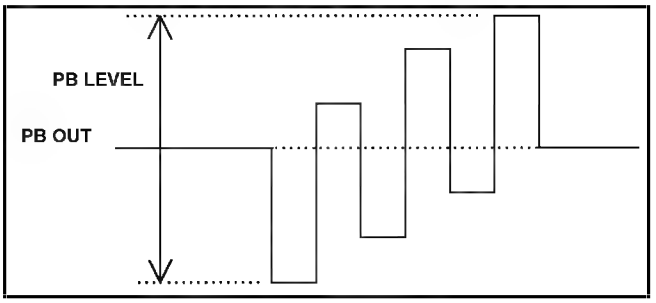
4. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
5. Playback the colour bar portion of the Alignment Tape.
6. Confirm that the Y Level is in the specification,if it is not, adjust VR7008 so that the component Y Level is in the specification.




## 5-2-11 Component Pb Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 700mV ± 1% |
| **TEST** | PB_OUT |
| **ADJUST** | VR7606 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour bar portion<br>VFM3680KM (0min to 10min) |
| **M.EQ** | WFM Monitor |

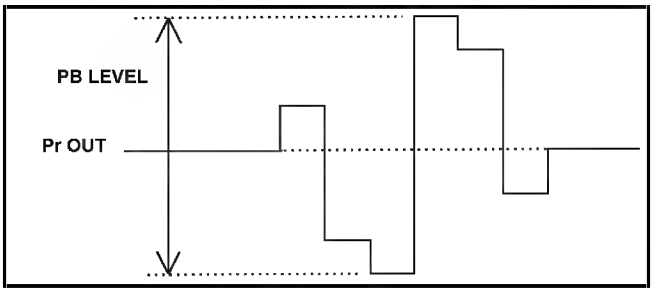
4. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
5. Playback the colour bar portion of the Alignment Tape.
6. Confirm that the Pb level is in the specification, if it is not, adjust VR7606 so that the Pb Level of component out is in the specification.



## 5-2-12 Component Pr Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 700mV ± 1% |
| **TEST** | PR_OUT |
| **ADJUST** | VR7605 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | Colour bar portion<br>VFM3680KM (0min to 10min) |
| **M.EQ** | WFM Monitor |

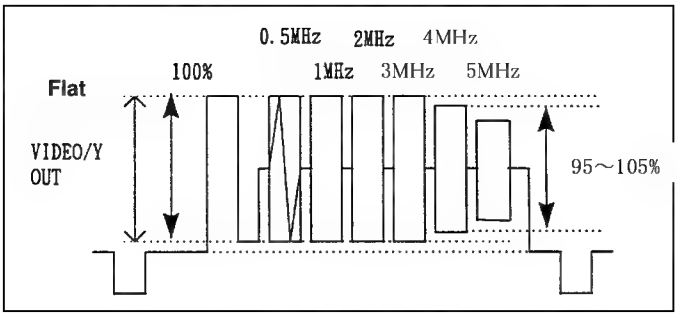
4. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
5. Playback the colour bar portion of the Alignment Tape.
6. Confirm that the Pr level is in the specification, if it is not, adjust VR7605 so that the Pr Level of Component out is in the specification.




## 5-2-13 Component Y Frequency Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 5MHz ± 0.5dB |
| **TEST** | Video/Y Out |
| **ADJUST** | VR7009 |
| **INPUT** | VIDEO/Y IN, PR IN,PB IN : Multi Burst |
| **MODE** | REC(VTR1) EE(VTR2) |
| **TAPE** | Work tape |
| **M.EQ** | WFM Monitor |

5. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
6. Adjust VR7009 so that the frequency characteristic is flat.
7. The right part of the H sweep frequency is 5MHz and the tolerance is 0±5%(±0.5dB)

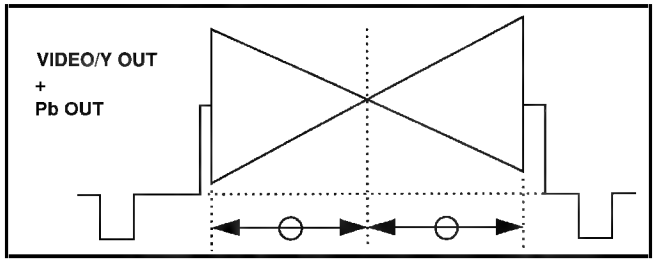


## 5-2-14 Component Y-Pb Timing Confirmation &Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0 → 20nS |
| **TEST** | PB_OUT, Video/Y Out |
| **ADJUST** | VR7603 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | BOWTIE portion<br>PAL: VFM3680KM (18min to 22min) |
| **M.EQ** | WFM Monitor |

5. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
6. Playback the BOWTIE portion of the Alignment Tape.
7. Set the WFM monitor in the Y-Pb timing adjustment mode.
8. Confirm that the Y-Pb timing is in the specification, if it is not, adjust VR7603 so that the cross point of envelope is at the center.

Note: Incase of WFM monitor does not have Y-Pb timing adjustment mode, if the oscilloscope have "ADD" and "INVERT" switch, please use those switch for make below waveform.

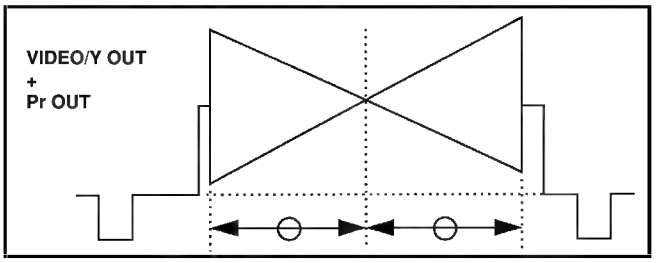



## 5-2-15 Component Y-Pr Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0 → 20nS |
| **TEST** | PR_OUT, Video/Y Out |
| **ADJUST** | VR7601 |
| **INPUT** | --- |
| **MODE** | PLAY |
| **TAPE** | BOWTIE portion<br>PAL: VFM3680KM (18min to 22min) |
| **M.EQ** | WFM Monitor |

5. Set the item "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
6. Playback the BOWTIE portion of the Alignment Tape.
7. Set the WFM monitor in the Y-Pr timing measuring mode.
8. Confirm that the Y-Pr timing is in the specification, if it is not, adjust VR7601so that the cross point of envelope is at the center.

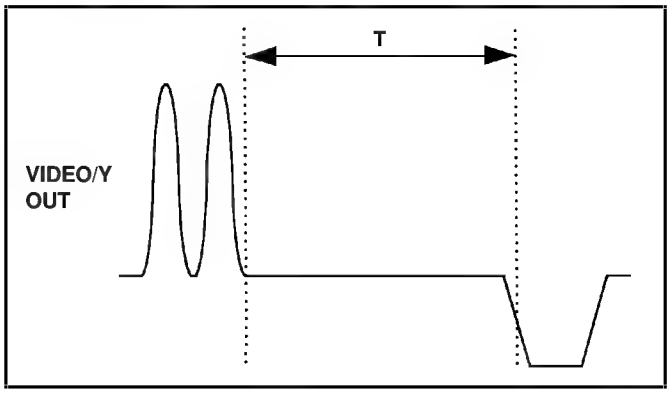
Note: Incase of WFM monitor does not have Y-Pb timing adjustment mode, if the oscilloscope have "ADD" and "INVERT" switch, please use those switch for make below waveform.



## 5-2-16. OSD Character Position Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | VTR1 T=4.2 ± 0.2µsec.<br>VTR2 T=5 ± 0.2µsec. |
| **TEST** | Video Mon Out |
| **ADJUST** | VC7401 |
| **INPUT** | VIDEO IN: 0% Flat Field |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | WFM Monitor |

4. Set the item "LCD SUPER" to ON on the BASIC SET UP menu.
5. Confirm that the T between the Sync edge and the CHAR is in the specification.
6. If it is out of the specification, adjust VC7401 so that T becomes 4.2±0.2µsec. (VTR1)/5±0.2µsec (VTR2).




## 5-2-17. 13.5M PLL Offset Adjustment (VTR1/VTR2)

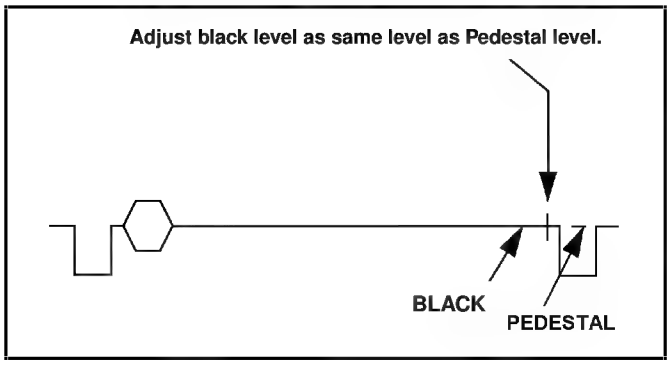
| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0 ± 0.1V |
| **TEST** | TP3701 (ERR) |
| **ADJUST** | VL3701 |
| **INPUT** | COMPONENT 100% colour bar<br>VIDEO/Y IN, PR IN, PB IN |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

2. Set the item "V IN SEL" to CMPNT on the SYSTEM SET UP menu.
3. Adjust VL3701 so that the DC level is in the specification.

## 5-2-18. AD Y Clamp Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Black level = Pedestal level ± 5mV |
| **TEST** | Video/Y Out |
| **ADJUST** | (VIDEO ADJUST) D08:Y CLAMP DC, VR3501 |
| **INPUT** | VIDEO/Y IN, PB IN, PR IN<br>COMPONENT 0% FLAT FIELD |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

4. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
5. Open the VIDEO ADJUST menu on Service menu.
6. Confirm that the Black level is pedestal level ±5mV, if it is out of the specification, adjust Y CLAMP DC so that the level is in specification.
7. If it can not adjust by EVR, adjust VR3501 so that the Black level becomes pedestal level ±5mV.

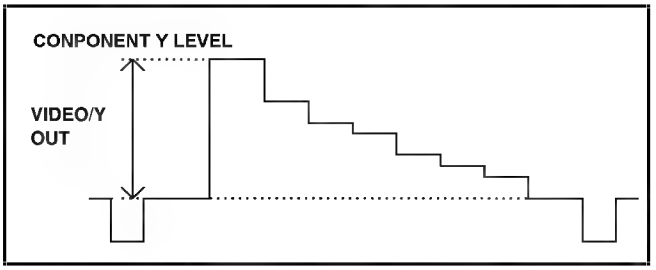



Note:
As the this signal has some carrier leak and noise etc. Put the Y filter switch of the WFM Monitor to "ON" and put the gain of the WFM Monitor up, and adjust.

## 5-2-19. REC Component Y Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 700mV ± 1% |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR3504 |
| **INPUT** | VIDEO/Y IN, PR IN,PB IN<br>COMPONENT 100% colour bar |
| **MODE** | EE |
| **TAPE** | |
| **M.EQ** | WFM Scope |

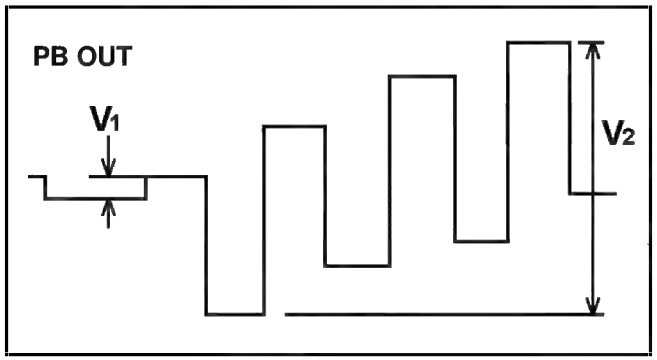
1. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Confirm that the Y level is in the specification.
3. If it is out of specification, adjust VR3504 so that the component Y Level is in the specification.



## 5-2-20. REC Component Pb Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | V1 = 0 ± 7mV, V2 = 700 ± 14mV |
| **TEST** | PB OUT |
| **ADJUST** | V1 =(VIDEO ADJUST) D07:REC PB BAL<br>V2 = VR3601 |
| **INPUT** | VIIDEO/Y IN, PR IN,PB IN<br>COMPONENT 100% colour bar |
| **MODE** | E-E |
| **TAPE** | No Tape |
| **M.EQ** | WFM Monitor |

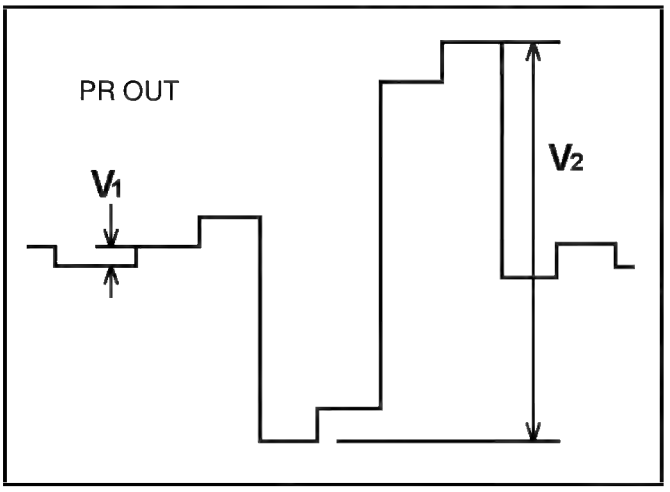
1. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Open the VIDEO ADJUST menu on Service menu.
3. Confirm that the level V1 and V2 are in the specification.
4. If it is out of specification, adjust REC PB BAL for V1 and VR3601 for V2 so that the level is in the specification.
5. If it can not adjust by EVR for V1, adjust VR3602 (PB CLAMP DC) so that the level is 0 ± 5mV.




## 5-2-21. REC Component Pr Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | V1 = 0 ± 7mV, V2 = 700 ± 14mV |
| **TEST** | PR OUT |
| **ADJUST** | V1 = (VIDEO ADJUST) D06:REC PR BAL<br>V2 = VR3503 |
| **INPUT** | VIDEO/Y IN, PR IN, PB IN<br>COMPONENT 100% colour bar |
| **MODE** | E-E |
| **TAPE** | No Tape |
| **M.EQ** | WFM Monitor |

1. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Open the VIDEO ADJUST menu on Service menu.
3. Confirm that the level V1 and V2 are in the specification.
4. If it is out of specification, adjust REC PR BAL for V1 and VR3503 for V2 so that the level is in specification.
5. If it can not adjust by EVR for V1, adjust VR3502 (PR CLAMP DC) so that the level is 0 ± 5mV.

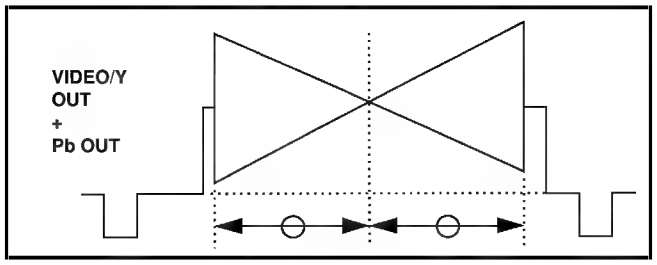


## 5-2-22. REC Component Y-Pb Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0 → 20nS |
| **TEST** | VIDEO/Y OUT, PB_OUT |
| **ADJUST** | VR3203 |
| **INPUT** | VIDEO/Y IN, PR IN, PB IN<br>COMPONENT 100% BOWTIE |
| **MODE** | EE |
| **TAPE** | |
| **M.EQ** | WFM Monitor |

1. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Set the WFM monitor in the YC timing adjustment mode.
3. Confirm that the Y-Pb timing is in the specification.
4. If it is out of specification, adjust VR3203 so that the cross point of envelope is at center.

Note: In case of WFM monitor does not have Y-Pb timing adjustment mode, if the oscilloscope have "ADD" and "INVERT" switch, please use those switch for make below waveform.

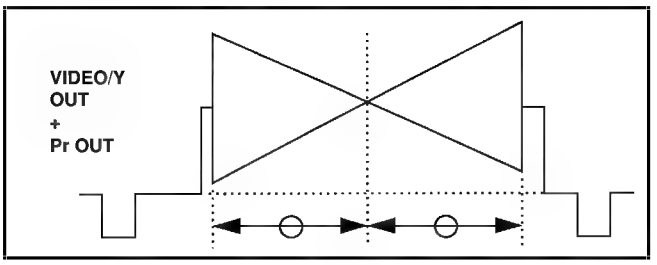



## 5-2-23. REC Component Y-Pr Timing Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 0 → 20nS |
| **TEST** | VIDEO/Y OUT, PR_OUT |
| **ADJUST** | VR3208 |
| **INPUT** | VIDEO/Y IN, PR IN, PB IN<br>COMPONENT 100% BOWTIE |
| **MODE** | EE |
| **TAPE** | |
| **M.EQ** | WFM Monitor |

1. Set the item "V IN SEL" and "V OUT SEL" to CMPNT on the SYSTEM SET UP menu.
2. Set the WFM monitor in the YC timing measuring mode
3. Confirm that the Y-Pr timing is in the specification.
4. If it is out of specification, adjust VR3208 so that the cross point of envelope is at the center.

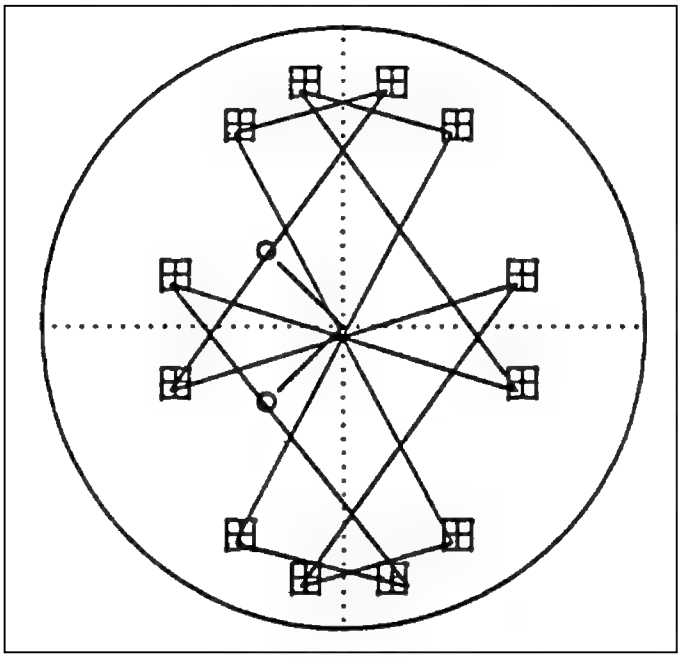
Note: In case of WFM monitor does not have Y-Pb timing adjustment mode, if the oscilloscope have "ADD" and "INVERT" switch, please use those switch for make below waveform.



## 5-2-24. COMPONENT MONITOR EE C Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | Each vector point is center of the square mark (But the phase direction difference is ± 8%) |
| **TEST** | VIDEO MON OUT |
| **ADJUST** | VR7901 (PR C LEV),<br>VR7902 (PB C LEV) |
| **INPUT** | VIDEO/Y IN, PR IN, PB IN<br>COMPONENT 100% colour bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Vector Scope |

3. Set the item "V IN SEL" to CMPNT on the SYSTEM SET UP menu.
4. Keep pressing the EXT CHECK button and adjust VR7901 and VR7902 so that the each vector point is center of the square mark (But the phase direction difference is ± 8%).

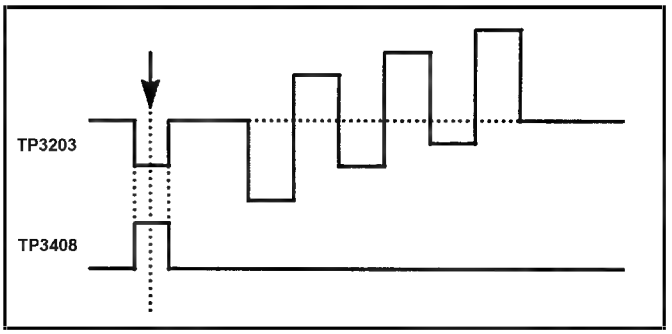


## 5-2-25. RSTW Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0 ± 100nsec. |
| **TEST** | TP3408 (BGP), TP3203 (PB BLK DC) |
| **ADJUST** | VR3211 |
| **INPUT** | VIDEO/Y IN: 100% Colour Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

2. Set the item "V IN SEL" to CMPST on the SYSTEM SET UP menu.
3. Adjust VR3211 so that the BURST portion at TP3203 is the same phase as the phase which is center of the pulse at TP3408.

Note:
It is not locked, turn VR3405 to locked.

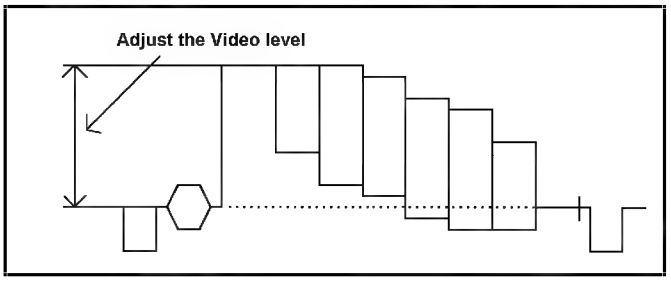


## 5-2-26. Composite Y Input Level Adjustment(VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0.7V ± 2% |
| **TEST** | Video/Y Out |
| **ADJUST** | (VIDEO ADJUST)<br>D09:CPS Y LEV |
| **INPUT** | VIDEO IN: 100% Colour Bar |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

4. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
5. Open the VIDEO ADJUST menu on Service menu.
6. Adjust CPS Y LEV so that the level is 0.7V ± 2%
7. If it can not adjust by VIDEO ADJUST MENU, adjust VR3006 (CPS AD LEV).

Note:
BLACK LEVEL VR and VIDEO LEVEL VR should be in click portion.

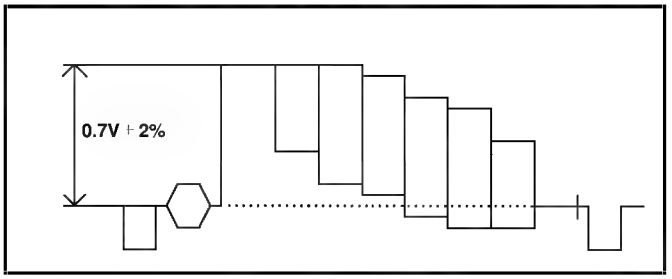



## 5-2-27. COMPOSITE MONITOR EE Y Level Confirmation & Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | 0.7V ± 2% |
| **TEST** | Video Monitor Out |
| **ADJUST** | VR7402 |
| **INPUT** | VIDEO IN: 100% Colour Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | WFM Monitor |

(VTR1)

3. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
4. Confirm that the video level of VTR1 is 0.7V ± 2%, if it is out of the specification, adjust VR7402 (VTR1) so that the level becomes 0.7V ± 2%.



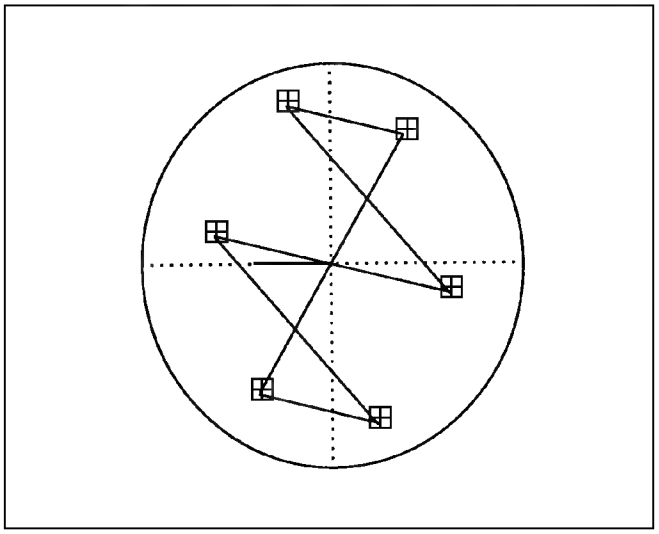

(VTR2)

1. Set the item "V IN SEL" and to CMPST on the SYSTEM SET UP menu.
2. Keep pressing the EXT CHECK button and Confirm that the video level of VTR2 is 0.7V ± 2%, if it is out of the specification, adjust VR7402 (VTR2) so that the level becomes 0.7V ± 2%.

## 5-2-28. COMPOSITE MONITOR EE C Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | Each vector point is center of the square mark (But the phase direction difference is ± 5%) |
| **TEST** | VIDEO MON OUT |
| **ADJUST** | VR3002 |
| **INPUT** | VIDEO IN: 75% color bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Vector Scope |

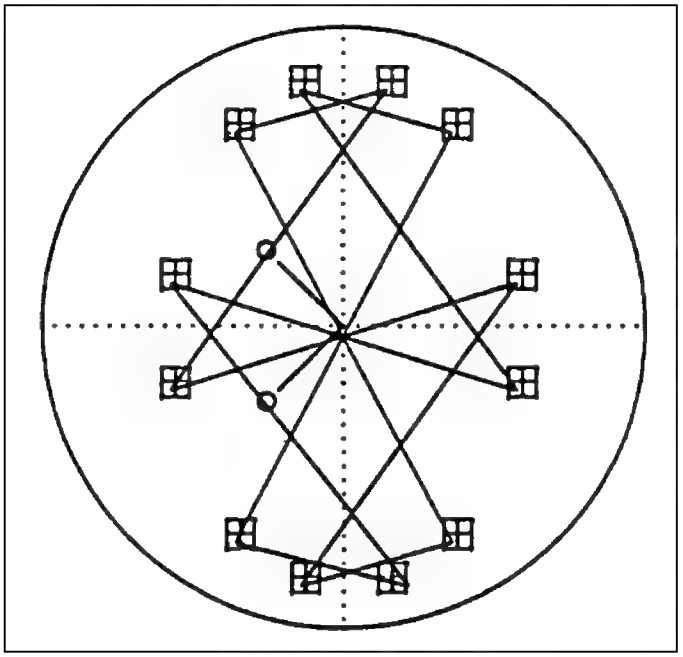
5. Set the item "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
6. Keep pressing the EXT CHECK button and adjust VR3002 so that the each vector point is center of the square mark (But the phase direction difference is ± 5%).



## 5-2-29. CHROMA Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | Vector Point is Center of Square Mark |
| **TEST** | Video Out |
| **ADJUST** | (VIDEO ADJUST)<br>D10:AXIS, D11:C LEV<br>VR3405,VR3213,VR3214 |
| **INPUT** | VIDEO IN: 100% Colour Bar |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | Vector Scope |

4. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
5. Open the VIDEO ADJUST menu on Service menu.
6. Adjust AXIS so that the each vector points becomes on center of the square marks.
7. If it can not adjust by EVR on VIDEO ADJUST MENU, adjust VR3405 (AXIS 1), VR3213 (DEC PB LEV) and VR3214 (DEC PR LEV).



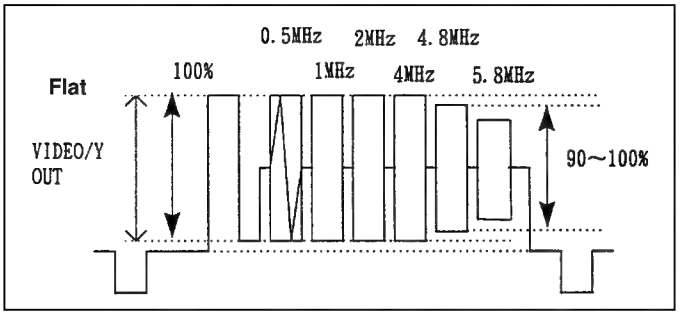
Note:
The VRs (VIDEO LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.
Note:
Before this adjustment, the playback circuit adjustments should be completed.

## 5-2-30. Composite Y Frequency Response Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | 4.8MHz = 0 – 1dB |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR7003 |
| **INPUT** | VIDEO/Y IN : Multi Burst |
| **MODE** | REC (VTR1) / EE (VTR2) |
| **TAPE** | Work tape |
| **M. EQ** | WFM Monitor |

1. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Adjust VR7003 so that the frequency response is flat.

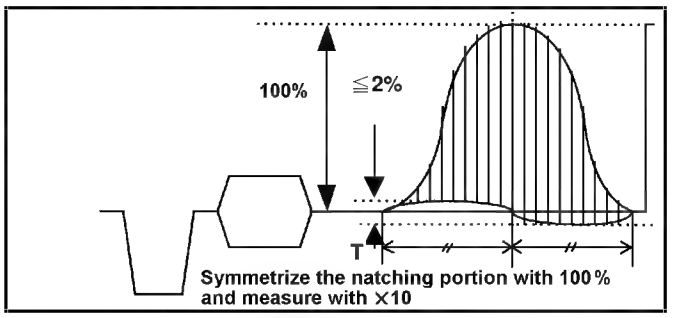
Note:
The level of middle range should not be swelled over 10%.




## 5-2-31. REC YC Timing Confirmation (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | T=0 ± 20ns |
| **TEST** | Video/Y Out |
| **ADJUST** | --- |
| **INPUT** | VIDEO/Y IN : 12.5 T PULSE & BAR |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

4. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
5. Confirm that the hatching portion of below figure is symmetric by left and right, and confirm that the YC




timing is in specification.

6. If it is out of specification, adjust VR7215 so that the YC timing is 0 ± 20ns (" 2%).

Note:
When confirm it, adjust the chroma Level VR properly. Set the Chroma Level VR to click position after adjustment.

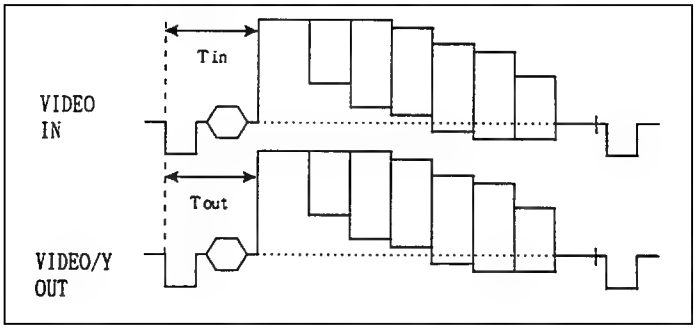
Note:
If adjust the VR7215, confirm the Vector and Burst adjustment.

## 5-2-32. Y Signal Timing Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1) / Analog 2 (VTR2) |
| **SPEC.** | T out = T in → 10 nsec |
| **TEST** | VIDEO/Y OUT |
| **ADJUST** | VR3701 |
| **INPUT** | VIDEO/Y IN : 100% Colour Bar |
| **MODE** | REC (VTR1) EE (VTR2) |
| **TAPE** | Work Tape |
| **M. EQ** | WFM Monitor |

3. Set the item "V IN SEL" and "V OUT SEL" on the SYSTEM SET UP menu.
4. Adjust VR3701 so that the phase of T in and T out position in the specification.

Note:
Before this adjustment, the digital circuit and SCH phase video adjustment should had been completed.

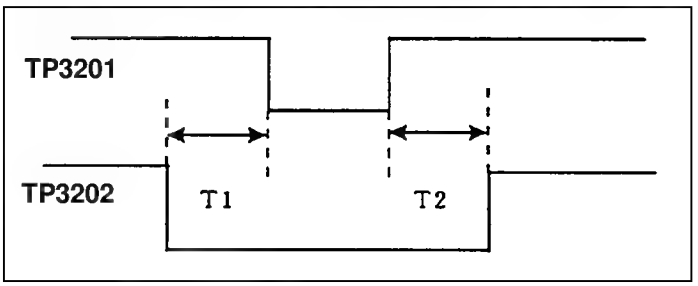



## 5-2-33. SCH Detection Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | as follows |
| **TEST** | TP3201, TP3202, TP3207 |
| **ADJUST** | VR3201 |
| **INPUT** | VIDEO IN: 100% Colour Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope. |

5. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
6. Adjust VR3201 so that the T1 and T2 portion are in the specification, then confirm that the DC level at TP3207 is more than 4.5V.
7. Confirm that the DC level at TP3207 is less than 0.7V under the No input signal condition.

Note:
If the VR3201 have two adjustment point, set it in specification position of colour framing (item 5-2-33).

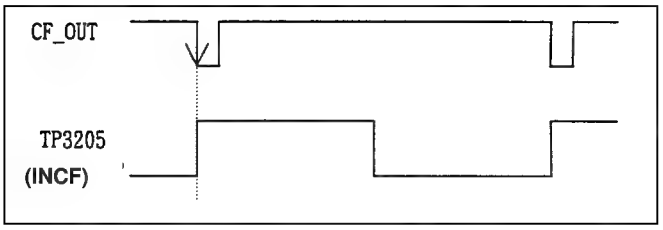


## 5-2-34. Confirmation of Colour Framing Detection (VTR1/VTR2)

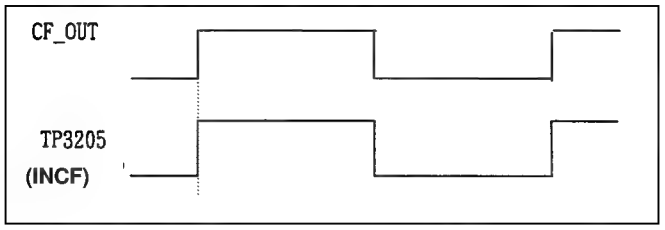
| | |
|---|---|
| **BOARD** | Analog 1 (VTR1)/Analog 2 (VTR2) |
| **SPEC.** | |
| **TEST** | CF OUT of SG, TP3205 |
| **ADJUST** | --- |
| **INPUT** | VIDEO/Y IN: 100% Colour Bar |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope. |

1. Set the item "V IN SEL" and "V OUT SEL" to CMPST on the SYSTEM SET UP menu.
2. Confirm that the phase is synchronized between falling edge of CF Pulse and rising edge of INCF Pulse.

Note:
Before this confirmation, SCH adjustment should have been completed.




Note:
Waveform shape of CF OUT pulse is difference by Signal Generator.

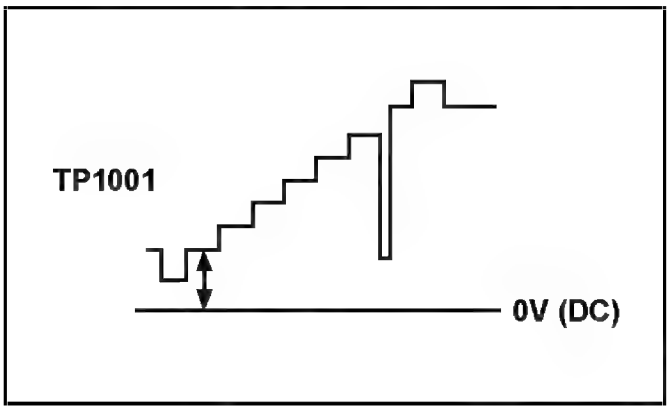


# 6. DD Converter

## 6-1 Bright Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | DD Conv. 1 (VTR1)/DD Conv. 2 (VTR2) |
| **SPEC.** | 3.8 ± 0.1V (DC) |
| **TEST** | TP1001 (VTR1)/TP1202 (VTR2) |
| **ADJUST** | Top Panel : BRIGHTNESS VR |
| **INPUT** | VIDEO IN: 5 STEP |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

1. Adjust the Brightness VR so that the voltage becomes in the specification.

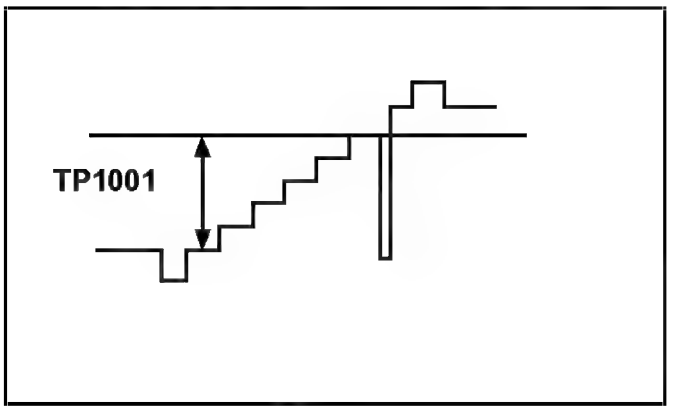



Note:
Before this adjustment, the Video Circuit Adjustment should has been completed.
The Encoder VRs (**NTSC:** VIDEO LEV, SET UP, HUE, CHROMA LEV) (**PAL:** VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.

## 6-2. Contrast Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | DD Conv. (VTR1)/DD Conv. (VTR2) |
| **SPEC.** | 3.3 ± 0.1Vp-p |
| **TEST** | TP1001 (VTR1)/TP1202 (VTR2) |
| **ADJUST** | (SYSTEM ADJUST) LCD CONT |
| **INPUT** | VIDEO IN: 5 STEP |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | Oscilloscope |

1. Adjust the LCD CONT so that the voltage becomes in the specification.

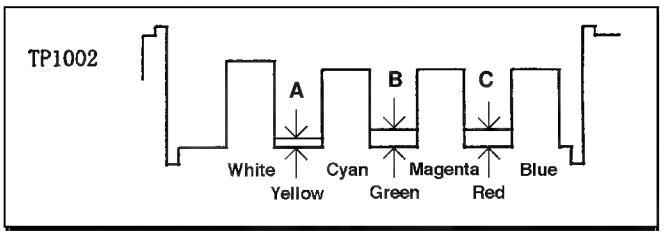



Note:
Before this adjustment, the Video Circuit Adjustment should has been completed.
The Encoder VRs (**NTSC:** VIDEO LEV, SET UP, HUE, CHROMA LEV) (**PAL:** VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.

## 6-3. HUE Adjustment (VTR1/VTR2) (For AJ-LT85P)

| | |
|---|---|
| **BOARD** | DD Conv. (VTR1)/DD Conv. (VTR2) |
| **SPEC.** | C 〔 200mVp-p |
| **TEST** | TP1002 (VTR1)/TP1203 (VTR2) |
| **ADJUST** | (SYSTEM ADJUST)<br>LCD HUE, LCD COLOR |
| **INPUT** | |
| **MODE** | PLAY |
| **TAPE** | VFM3580KM : Color Bar Portion |
| **M. EQ** | Oscilloscope |

1. Adjust LCD COLOR so that the levels (White and Blue,) are aligned.
2. Adjust LCD HUE so that the portion A, B and C are Becomes minimum, then portion C is should be becomes in specification.



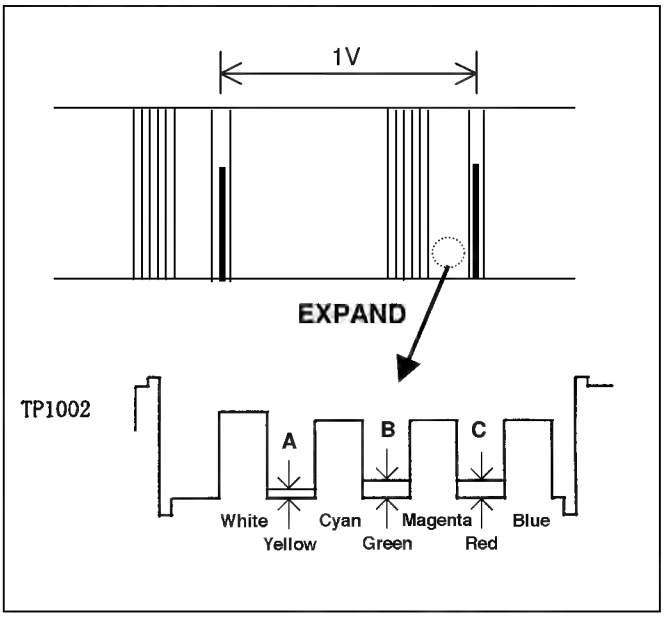

Note:
Before this adjustment, the Video Circuit Adjustment should has been completed.
The Encoder VRs (VIDEO LEV, SET UP, HUE, CHROMA LEV) should be in center click portion.

## 6-3. HUE Adjustment (VTR1/VTR2) (For AJ-LT85E)

| | |
|---|---|
| **BOARD** | DD Conv. (VTR1)/DD Conv. (VTR2) |
| **SPEC.** | C 〔 200mVp-p |
| **TEST** | TP1002 (VTR1)/TP1203 (VTR2) |
| **ADJUST** | (SYSTEM ADJUST)<br>LCD HUE, LCD COLOUR |
| **INPUT** | |
| **MODE** | PLAY |
| **TAPE** | VFM3680KM : Colour Bar Portion |
| **M. EQ** | Oscilloscope |

1. Adjust LCD COLOUR so that the levels (White and Blue,) are aligned.
2. Adjust LCD HUE so that the portion A, B and C are Becomes minimum, then portion C is should be becomes in specification.

Note:
Measure the waveform between 230 and 260 line period by 1V rate trigger.

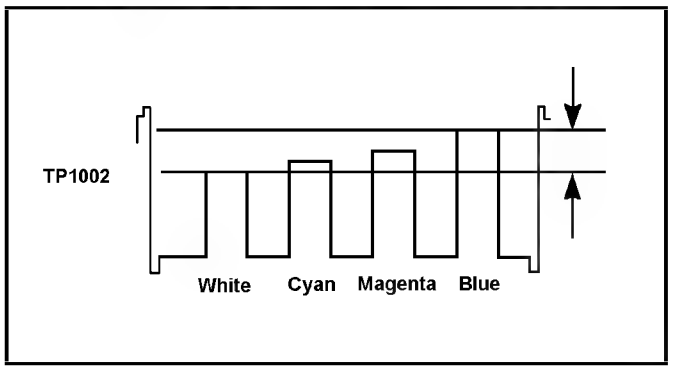



Note:
Before this adjustment, the Video Circuit Adjustment should has been completed.
The Encoder VRs (VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.

## 6-4. Chroma Level Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | DD Conv. (VTR1)/DD Conv. (VTR2) |
| **SPEC.** | 300 ± 50mVp-p |
| **TEST** | TP1002 (VTR1)/TP1203 (VTR2) |
| **ADJUST** | (SYSTEM ADJUST) LCD COLOUR |
| **INPUT** | |
| **MODE** | PLAY |
| **TAPE** | **NTSC:** VFM3580KM (Color Bar Portion)<br>**PAL:** VFM3680KM (Color Bar Portion) |
| **M. EQ** | Oscilloscope |

1. Adjust LCD COLOUR so that the level difference between white and blue becomes in the specification.




Note:
Before this adjustment the Video Circuit Adjustment should has been completed.
The Encoder VRs (**NTSC:** VIDEO LEV, SET UP, HUE, CHROMA LEV) (**PAL:** VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.

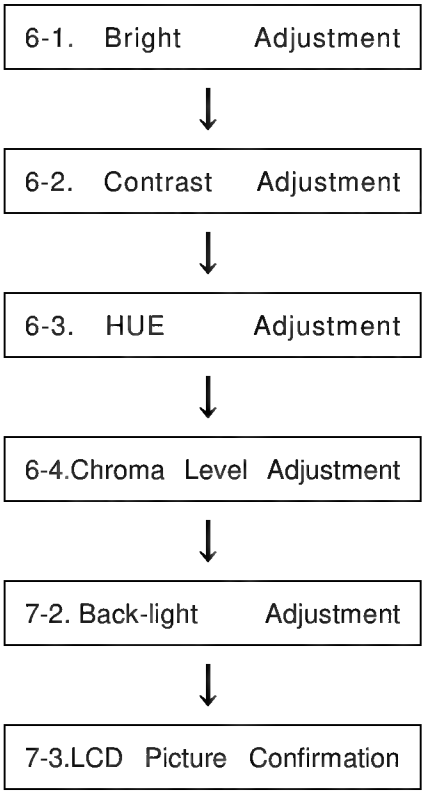
# 7. LCD Adjustment (VTR1/VTR2)

## 7-1. Preparation

1. Before these adjustments, the Video Circuit Adjustment should has been completed.
2. The Encoder VRs (**NTSC:** VIDEO LEV, SET UP, HUE, CHROMA LEV) (**PAL:** VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.
3. The Back Light Adjustment should be performed after over 30 minutes aging.

LCD Adjustment procedure after LCD replacement.

Note:
Please do not replace the LCD unit simultaneously VTR 1 and VTR 2




## 7-2. Back-light Adjustment (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | --- |
| **SPEC.** | --- |
| **TEST** | LCD Display |
| **ADJUST** | (SYSTEM ADJUST) LCD B LIGHT |
| **INPUT** | VIDEO IN: 100% Flat Field |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | --- |

1. Adjust LCD B LIGHT so that the brightness of the LCD becomes same as that of LCD of other VTR by your eyes.

Note:
The LCD panel have field angle of vision, you should look from the front.

Note:
Before this adjustment, the Video Circuit Adjustment should has been completed.
The Encoder VRs (**NTSC:** VIDEO LEV, SET UP, HUE, CHROMA LEV) (**PAL:** VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.

## 7-3. LCD Picture Confirmation (VTR1/VTR2)

| | |
|---|---|
| **BOARD** | --- |
| **SPEC.** | --- |
| **TEST** | LCD Display |
| **ADJUST** | (SYSTEM ADJUST)<br>LCD CONT, LCD COLOUR |
| **INPUT** | VIDEO IN: 4 RED FIELD |
| **MODE** | EE |
| **TAPE** | --- |
| **M. EQ** | --- |

1. Confirm that the brightness, contrast and colour of LCD are same as VTR 1 and 2 LCD by your eyes.
2. If it is not, adjust LCD CONT and LCD COLOUR so that the picture is same as VTR 1 and 2.

Note:
The LCD panel have field angle of vision, you should look from the front.

Note:
Before this adjustment, the Video Circuit Adjustment should has been completed.
The Encoder VRs (**NTSC:** VIDEO LEV, SET UP, HUE, CHROMA LEV) (**PAL:** VIDEO LEV, BLACK LEV, CHROMA PHASE, CHROMA LEV) should be in center click portion.

# 8. AV SYSCON

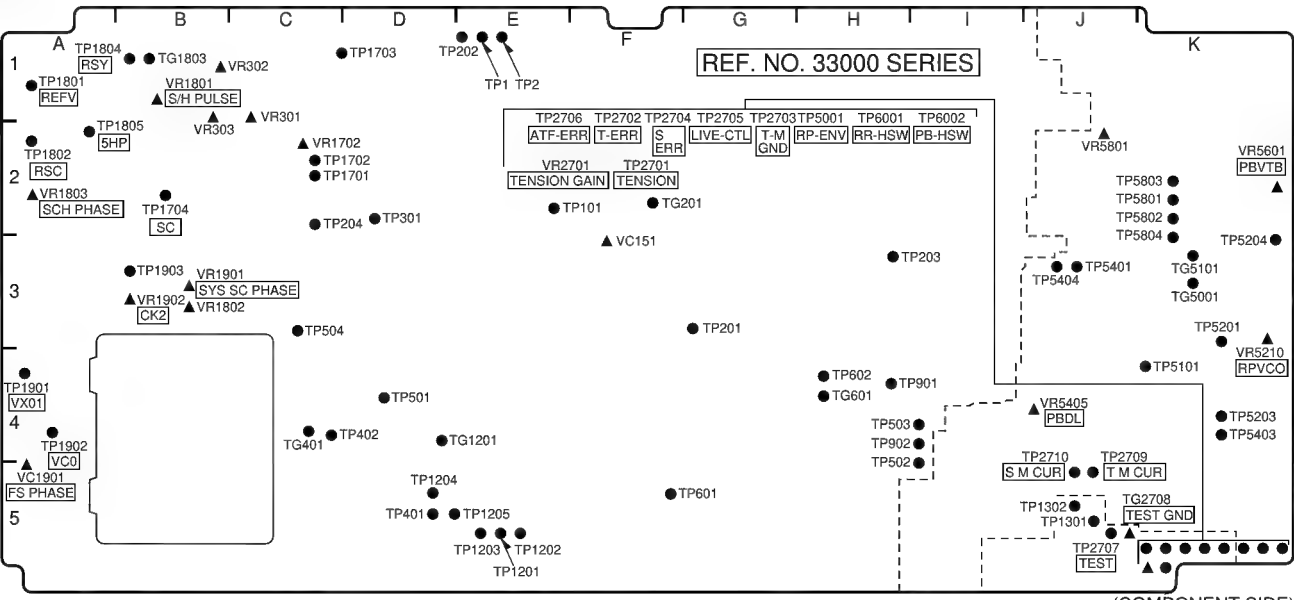
## 8-1. Tape Big./End Detect Sensor Voltage Adj.(VTR1/VTR2)

| | |
|---|---|
| **BOARD** | A/V SYSCON |
| **SPEC.** | 2.2 ± 0.6V |
| **TEST** | TP601:S-PHOTO(VTR1)<br>TP602:T-PHOTO(VTR1)<br>TP61301:S-PHOTO(VTR2)<br>TP61302:T-PHOTO(VTR2) |
| **ADJUST** | VR601:S-PHOTO(VTR1)<br>VR602:T-PHOTO(VTR1)<br>VR61301:S-PHOTO(VTR2)<br>VR61302:T-PHOTO(VTR2) |
| **INPUT** | --- |
| **MODE** | --- |
| **TAPE** | --- |
| **TOOL** | VFK1423(Tape big./end Det. Cassette) |

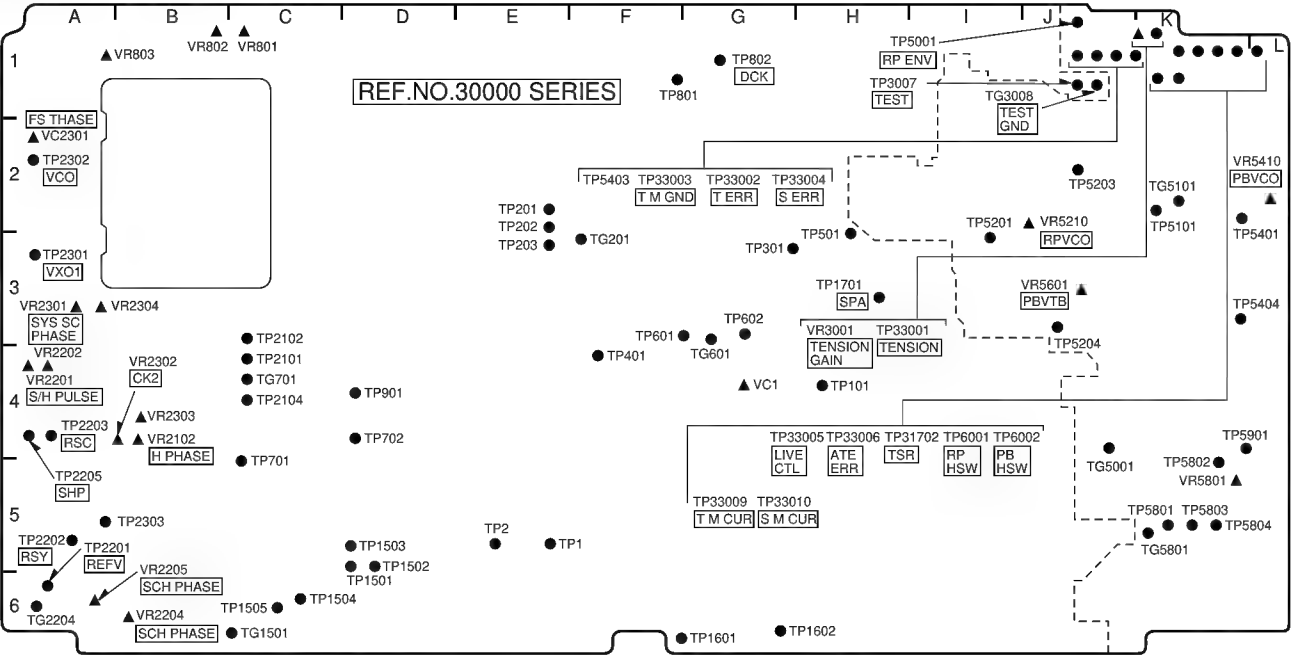
Note:
The S-PHOTO and T-PHOTO sensor voltage are displayed on the LCD Panel. The above Test Points do not require to connect oscilloscope.

1. Select the item E07:S PHOTO on the Service menu and insert the Tape big./end Det. Cassette.
2. Adjust VR601(VTR1) and VR61301(VTR2) so that the voltage value become in specification.
3. Select the item E08:T PHOTO on the Service menu and insert the Tape big./end Det. Cassette.
4. Adjust VR602(VTR1) and VR61302(VTR2) so that the voltage value become in specification.

# DIGITAL 1 P.C. BOARD

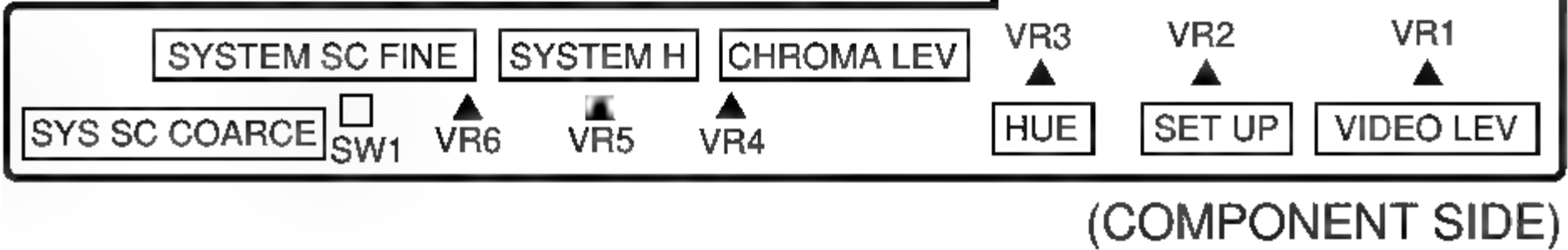


# DIGITAL 2 P.C.BOARD



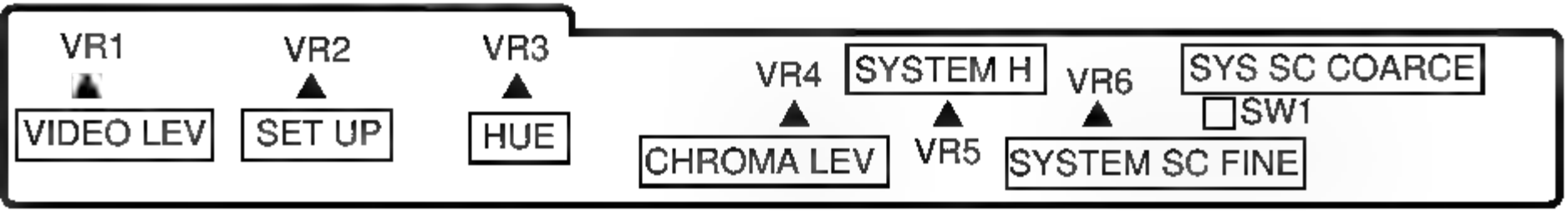

(COMPONENT SIDE)

# ENCODER VR L P.C. BOARD



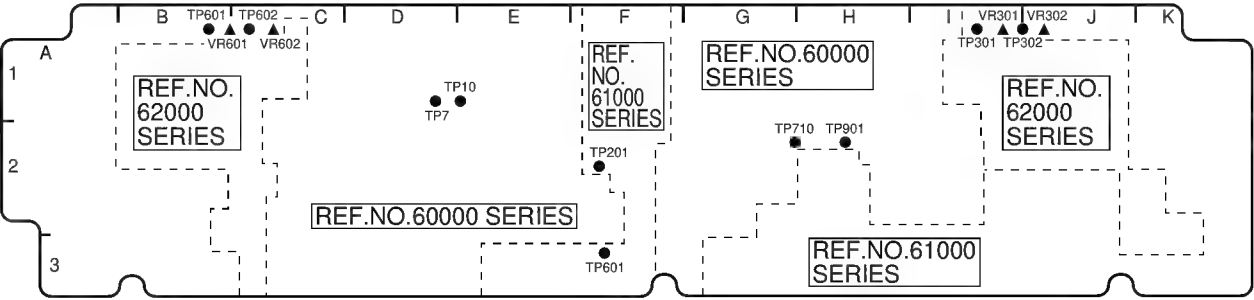

(COMPONENT SIDE)

# ENCODER VR R P.C. BOARD



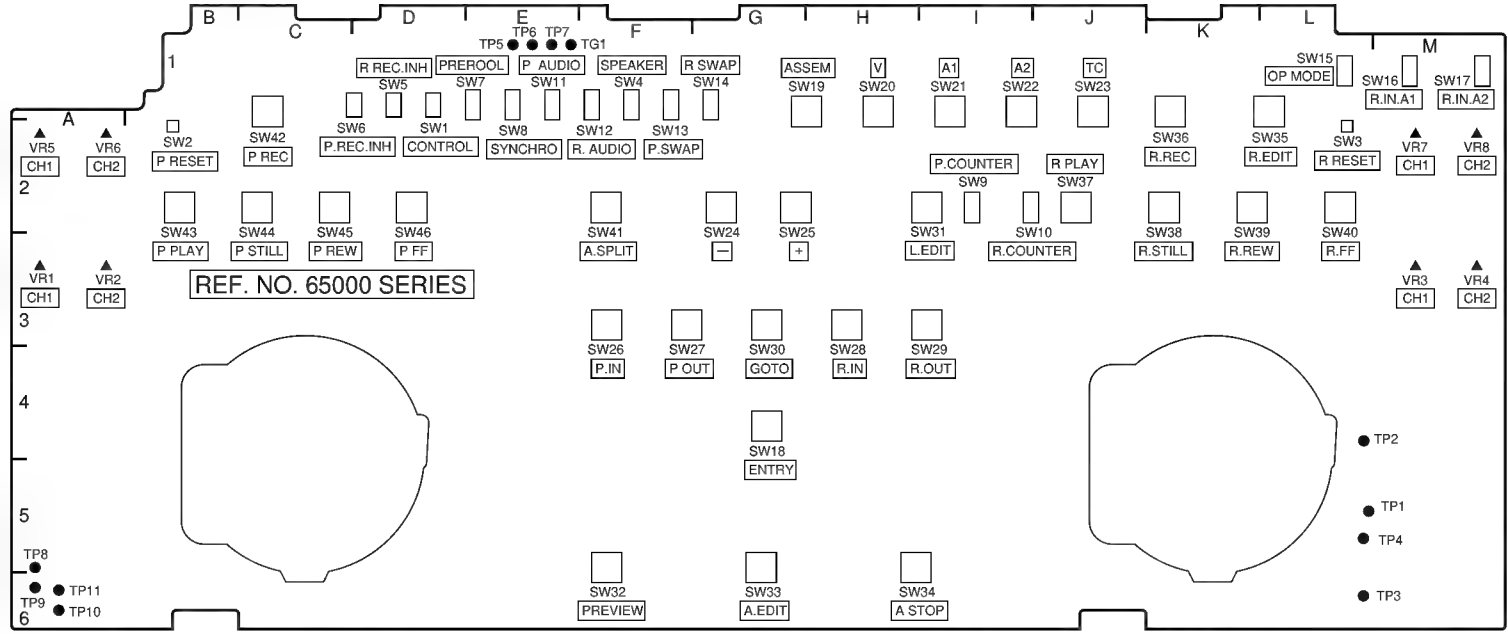

(COMPONENT SIDE)

AV SYSCON P.C.BOARD



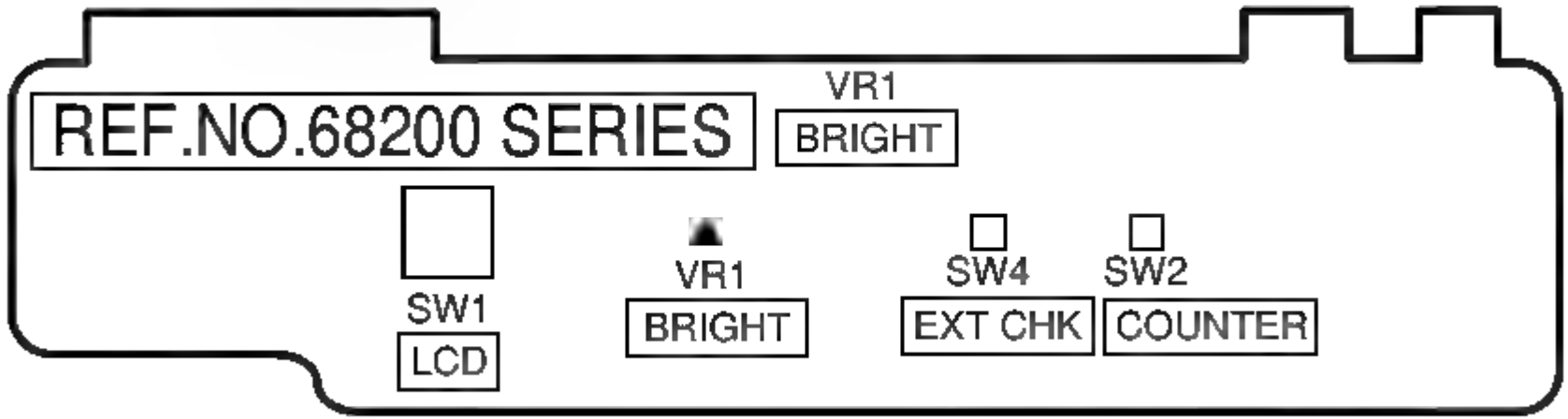

(COMPONENT SIDE)

KEY BOARD P.C. BOARD



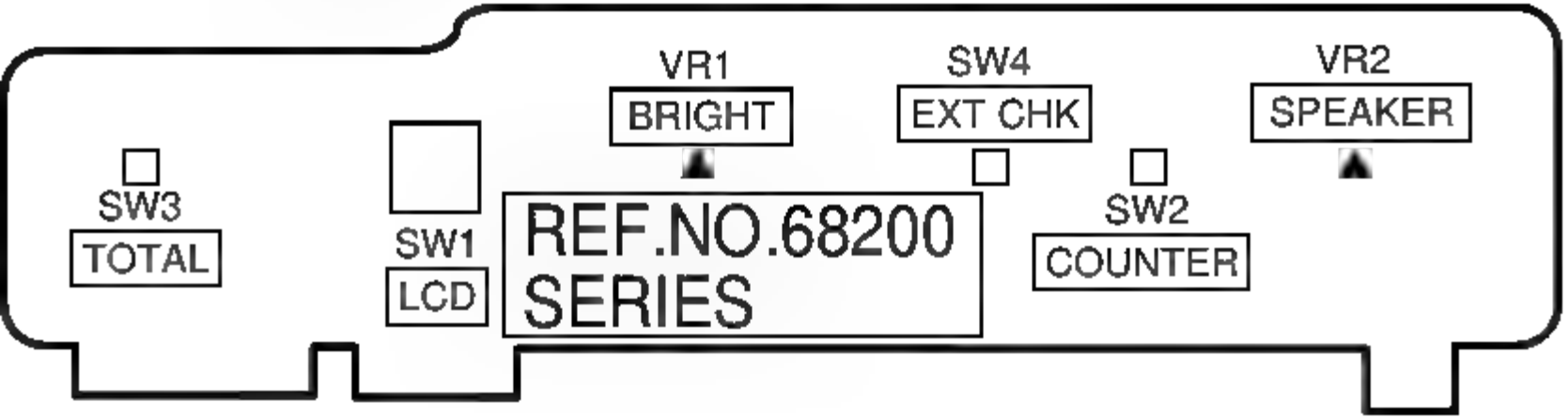

(COMPONENT SIDE)

# LCD CONTROL L P.C. BOARD



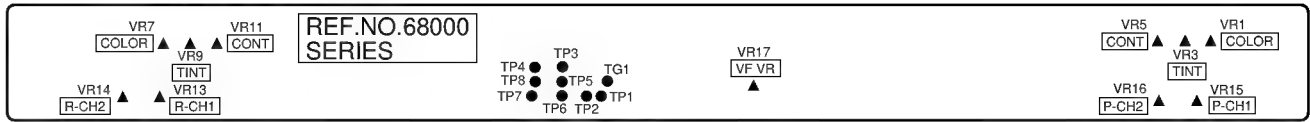

(COMPONENT SIDE)

# LCD CONTROL R P.C. BOARD



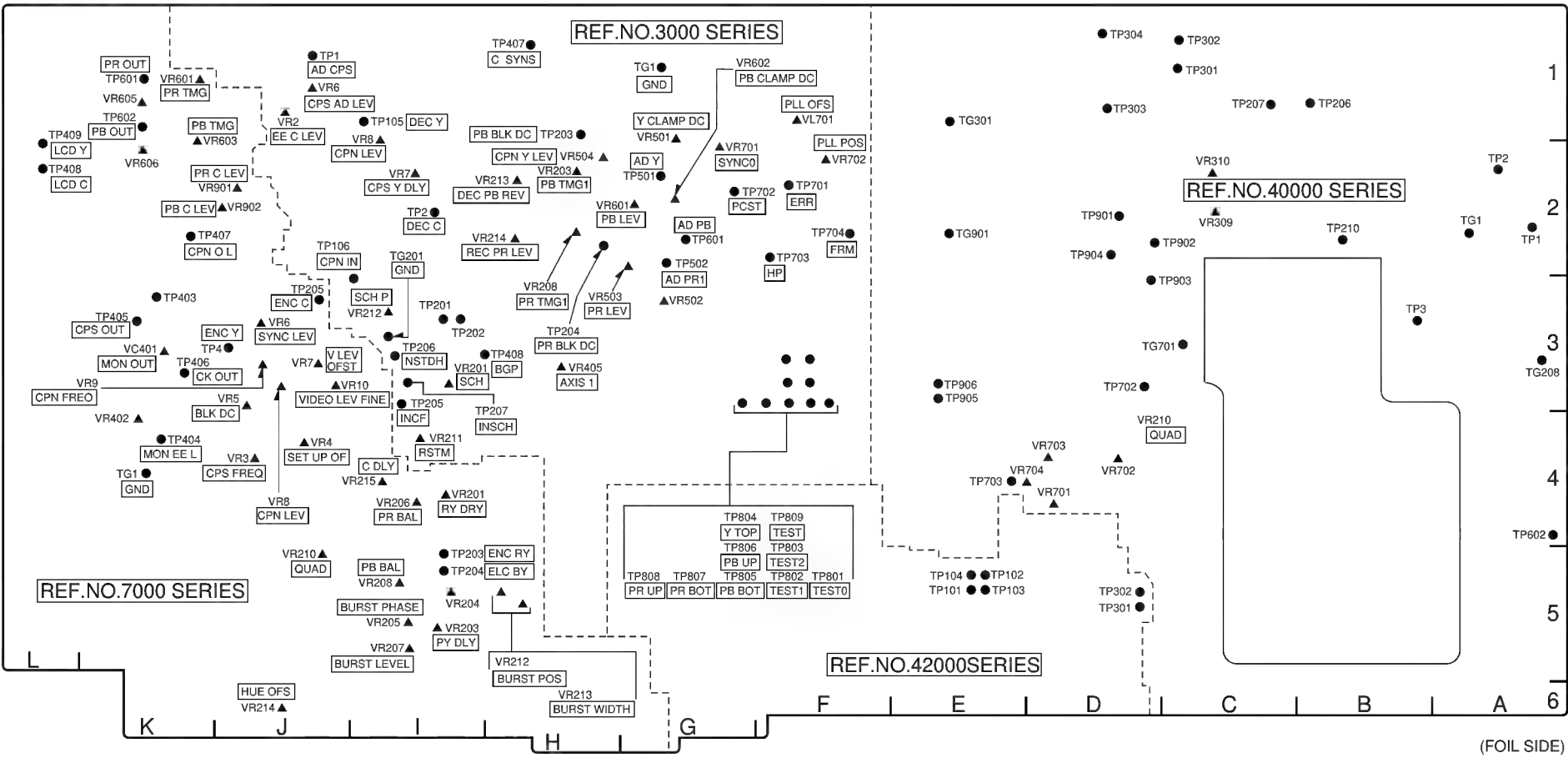

(COMPONENT SIDE)

DISPLAY CONTROL P.C. BOARD



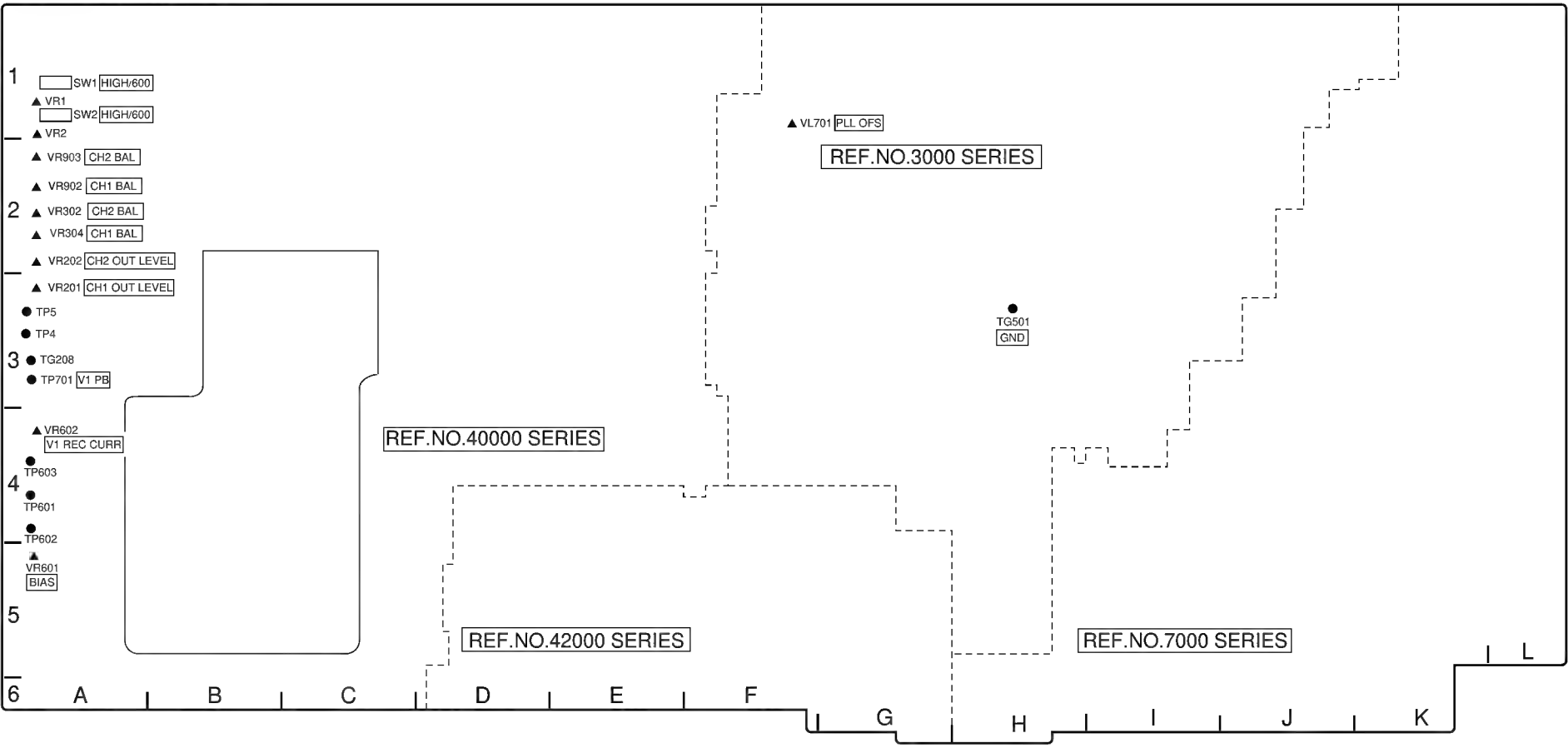

(FOIL SIDE)

ANALOG 1 P.C. BOARD



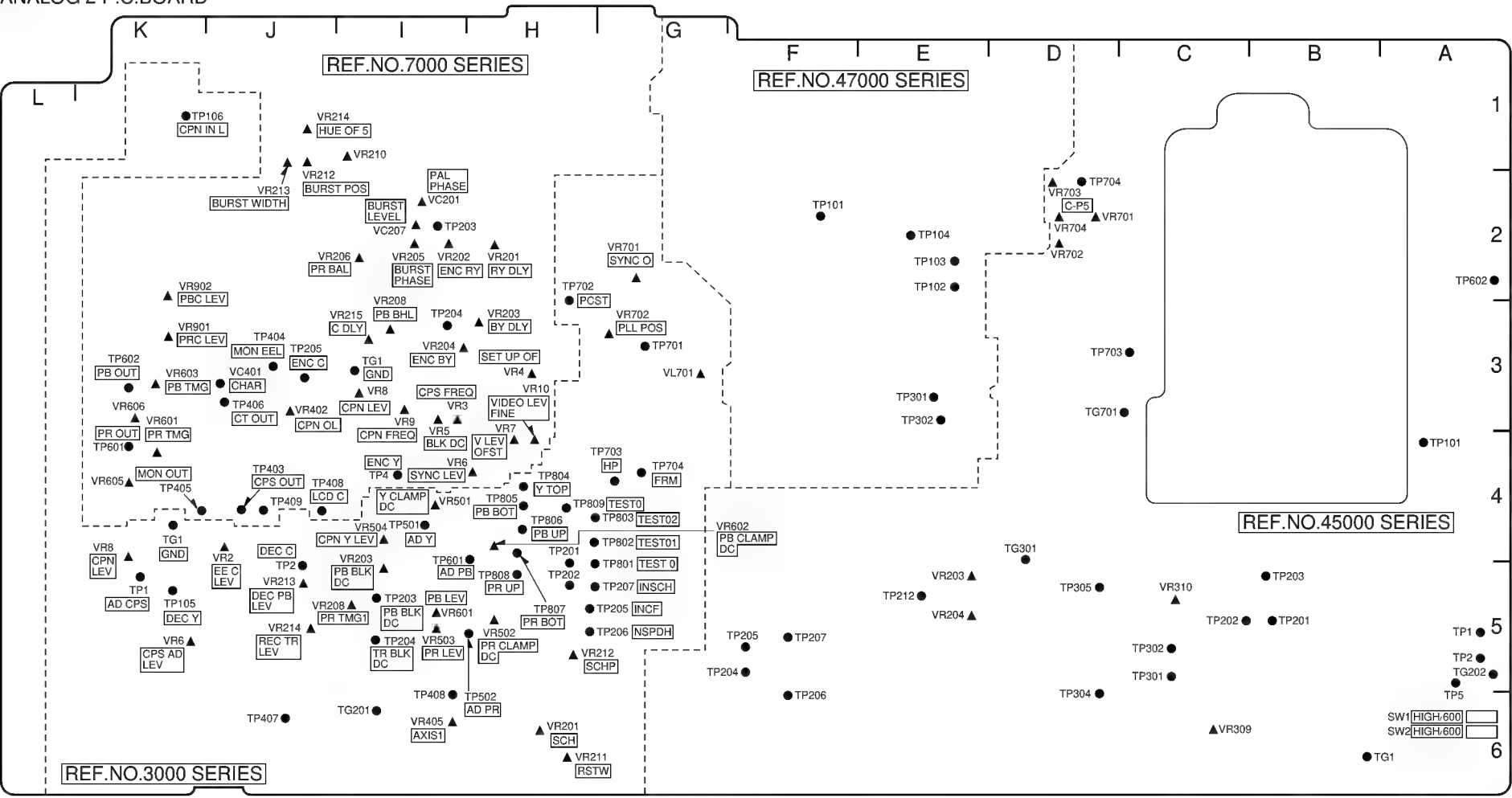

(FOIL SIDE)

ANALOG 1 P.C. BOARD



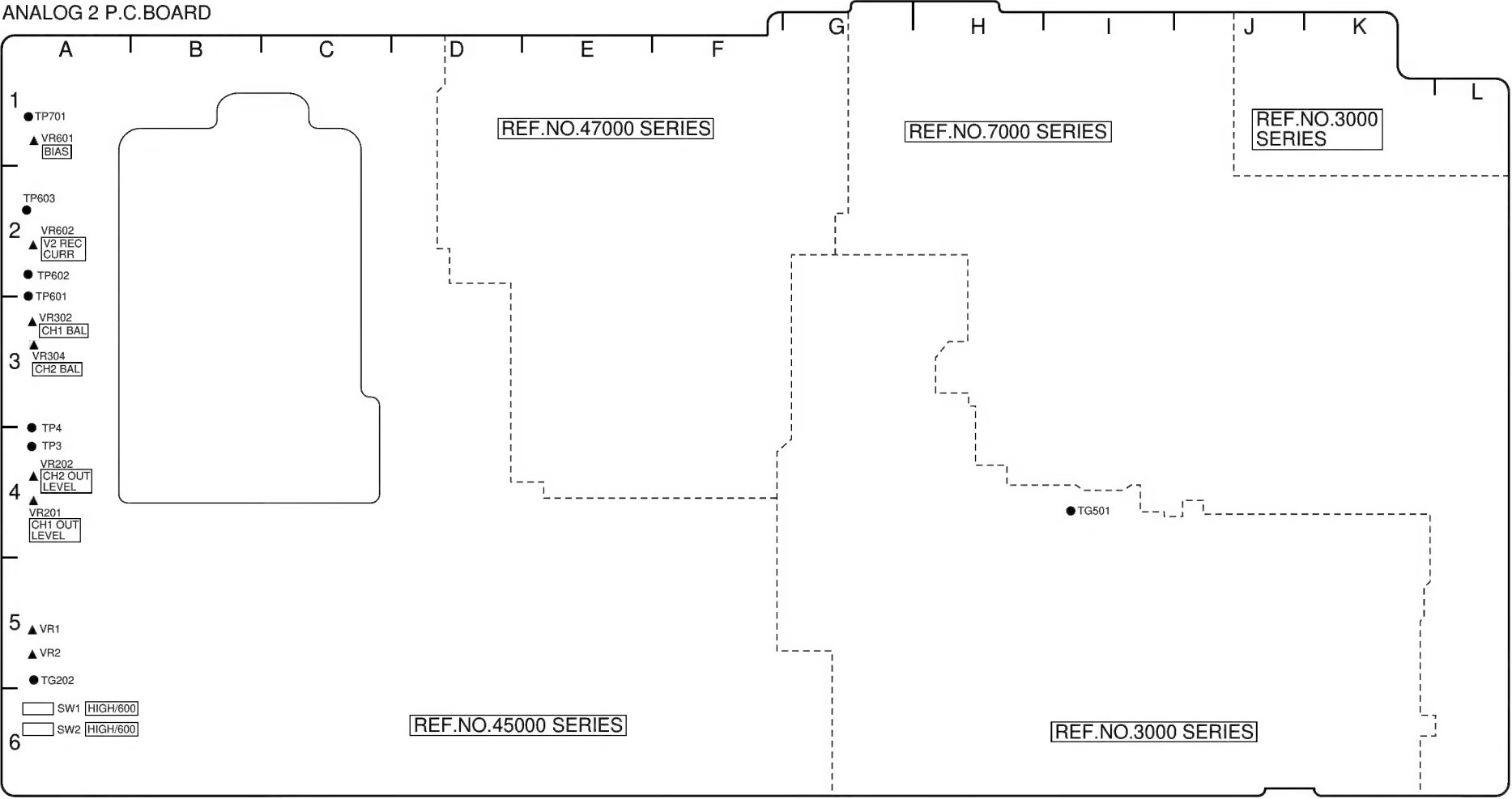

(COMPONENT SIDE)

ANALOG 2 P.C.BOARD



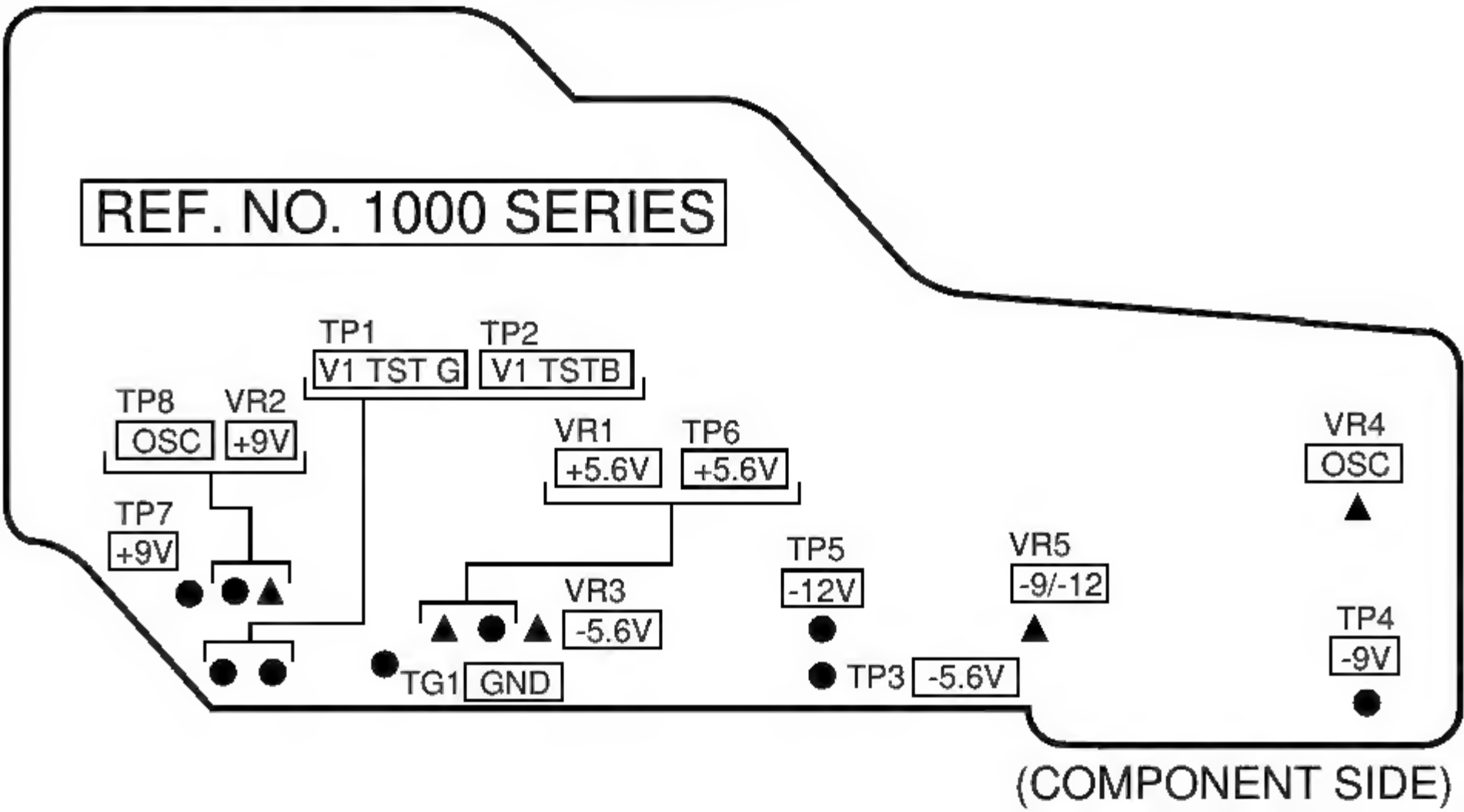

(FOIL SIDE)

ANALOG 2 P.C.BOARD

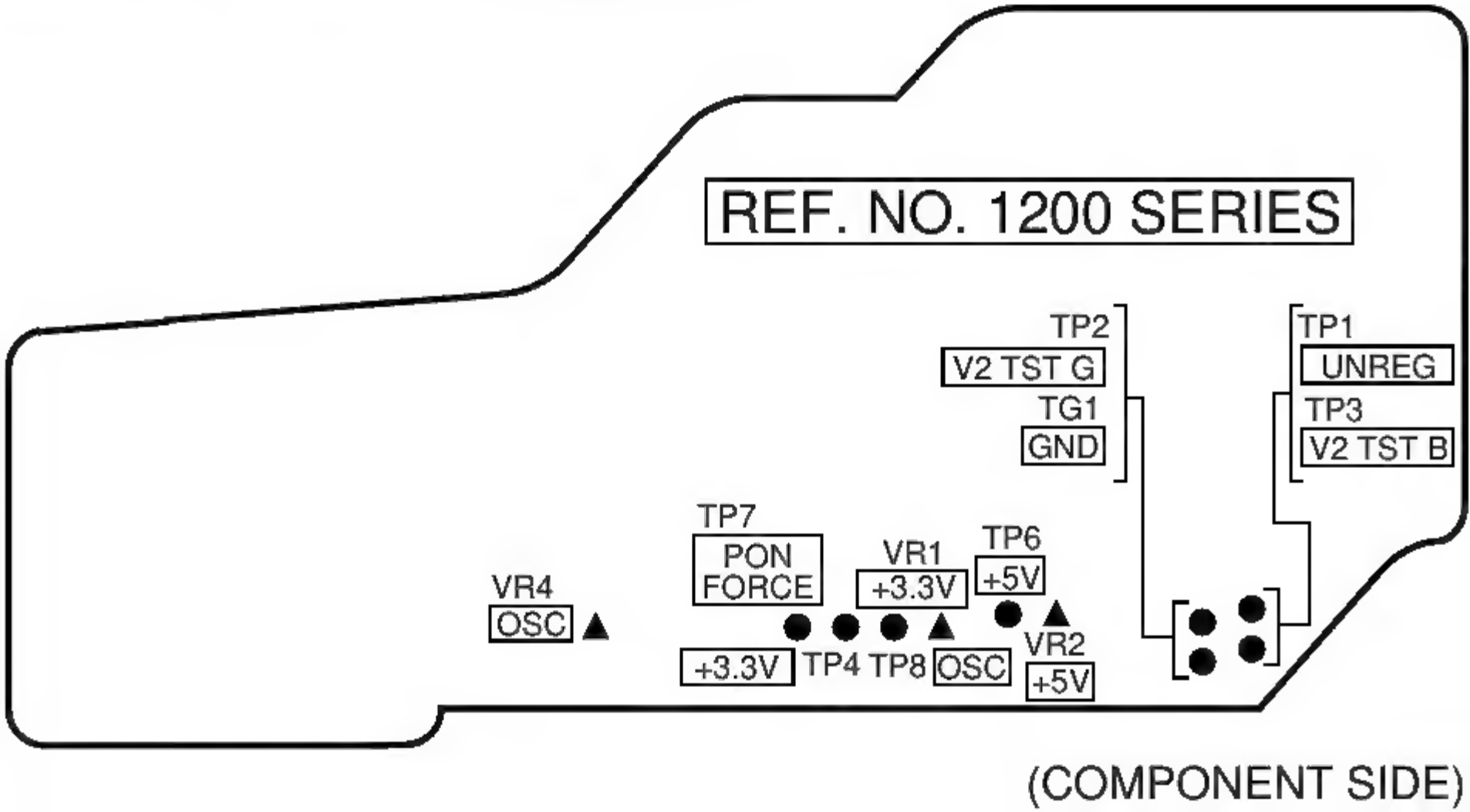



(COMPONENT SIDE)

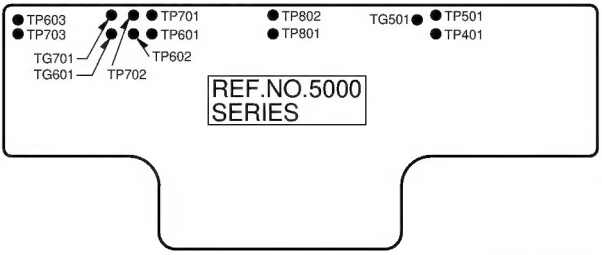
# DC DC CONV 1 P. C. BOARD



# DC DC CONV 2 P. C. BOARD

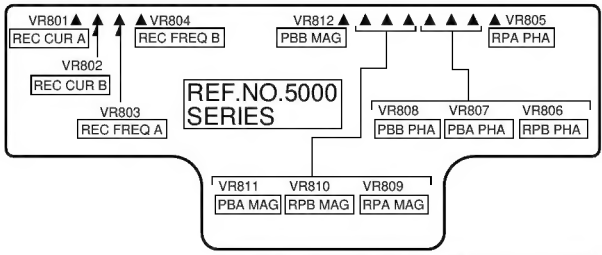


RF AMP P.C. BOARD




(FOIL SIDE)

RF AMP P.C. BOARD




(COMPONENT SIDE)